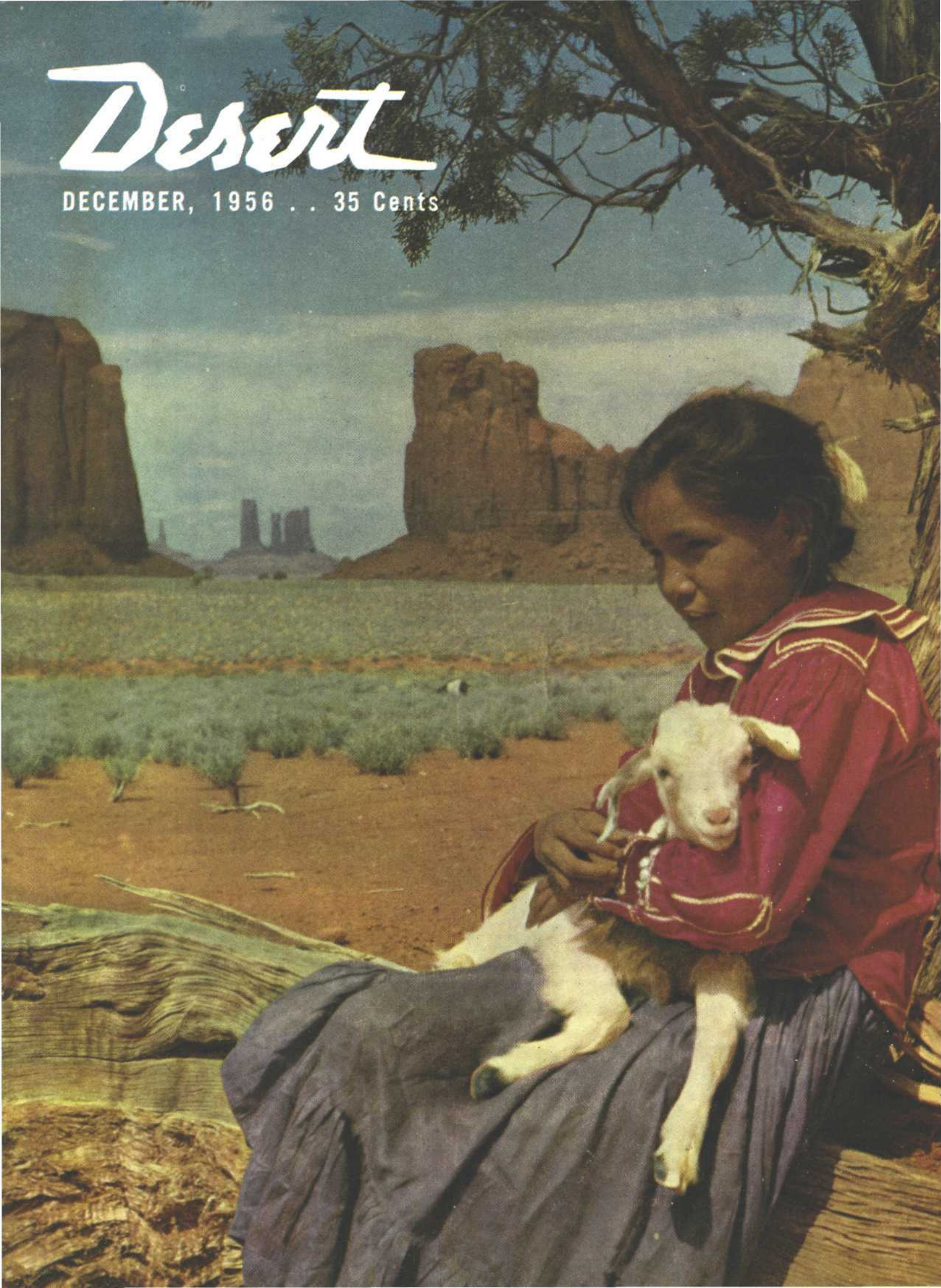
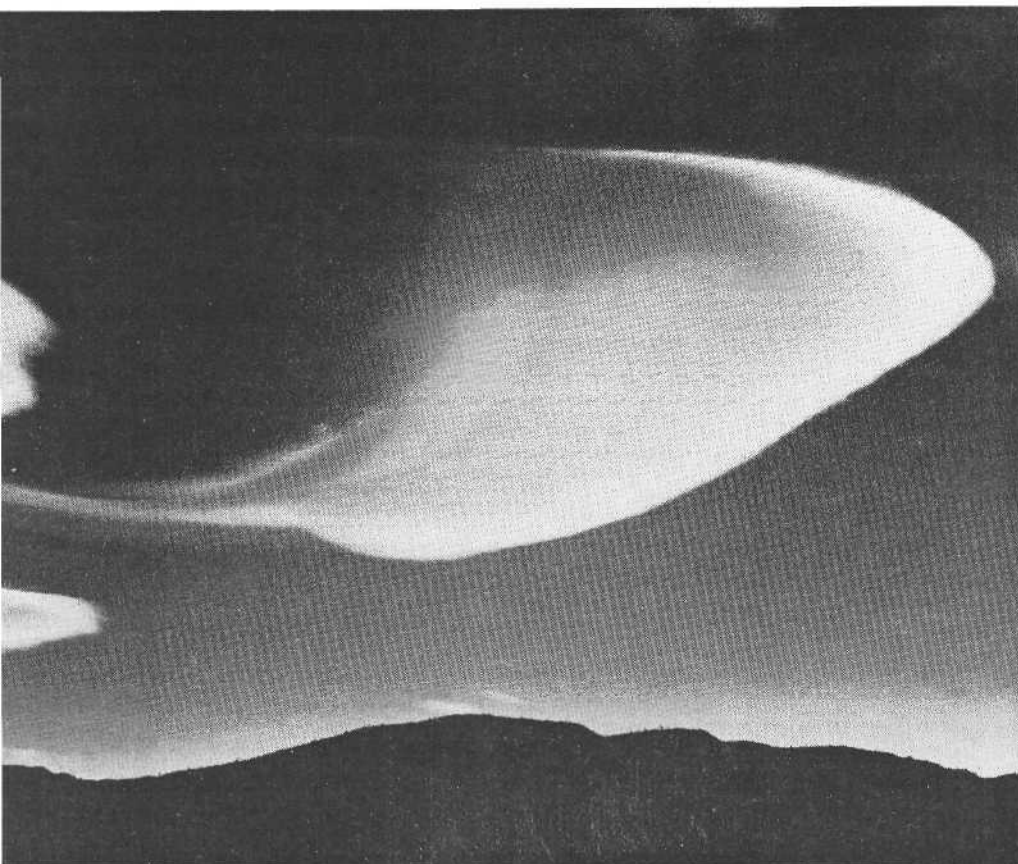


Desert

DECEMBER, 1956 . . 35 Cents





Photograph by Dick Freeman

MIGRATION

By HELEN BURBANK
San Bernardino, California
Today the robins rested,
Tonight brought flights of geese.
It's time to seek the desert
To find a swift release
From winter's chill that lingers.
A-tarnishing the soul.
Why cling to winter's fringes—
Why pay her latent toll?

RAPPORT

By GRACE BARKER WILSON
Kirtland, New Mexico
The desert land resents the hurried strangers
Who streak on ribbon roads across its face.
Unmindful of the beauties or the dangers,
But hastening on to reach a destined place.

The desert loves the little winding by-ways
That reach out toward a distant line of
smoke,
And lose themselves from view of well
paved highways
To make a visit with some simple folk.

The desert holds a secret store, well hidden
From transient ones. But all its wealth is
bared
To one whose dreams may wander on un-
bidden.
Who mysteries of a desert night has shared.

MY DESERT

By HELEN M. NANCE
Long Beach, California
What does the desert mean to me,
The sagebrush and the Joshua tree?
Heat waves building castles high
Mirages backed by cloudless sky.
Night winds brushing a tall sand dune.
Mesquite shadows under a silver moon.
Peace and quiet and a world that's free.
That's what the desert means to me.

DESERT DISCOVERY

By DOROTHY LA TRAILLE
Phoenix, Arizona
I was kindred to the sea.
Loving wave and sand;
Spraying breakers soothing me
As a mother's hand.

Then I came, denouncing fate,
To this desert place;
Awesome, silent, desolate.
Filled with vapid space.

Gradually, oh gradually,
Drawn by vivid skies,
Slowly and exquisitely,
I perceived disguise.

Hidden rocks, familiar-hued,
Trees like waving fronds,
Bright shell flowers—jewel-imbued
Desert vagabonds.

Thus I found, in sage and sand,
Sagas known to me;
Desert shores, now cactus spanned,
Once embraced the sea.

Seedling

By TANYA SOUTH
Though now we may not seem to
shine,
We do.
Man is of definite design,
With special progress to pursue.
So that, advancing into Time,
In coming reaches, vast and far,
He will be spherical, sublime,
For man is seedling of a star.

Cloud Fantasy

By MABELLE B. MCGUIRE
Ventura, California
Last night the desert lay below.
Today at dawn there was a lake
Of kapok cloud that carpeted
The view, now foam white and opaque.

The mountain peaks formed shore lines
steep,
No roads were winding 'round the edge;
No moorings, piers, nor wharves were there,
A craft would be a sacrilege.

The inlets, feathered, cottony,
Formed ceiling for the hidden earth.
To keep out sun until such time
As clouds dispelled to give it birth.

DERELICT

By KATHARINE BUOY KEENEY
Portland, Oregon
Out in the desert
It stands alone,
Beaten by stormwinds
Long ago blown;

Arms are uplifted
As if in despair—
The scarred old saguaro
Is making its prayer.

THE VAST LAND

By FRED F. BERGER, JR.
Victorville, California
Why must we hurry through our lives for
fortunes yet unearned?
Why must we race our fellow man for
knowledge yet unlearned?
God etched the cliffs and hewed the rocks
and carved the canyons too,
But, oh so slowly did He work with sand
and sun and wind and dew.
The vast lands, the wonder lands, the desert
lands I've known.

Are we as men engrossed in fears that we
ourselves have made?
Are we the burdened captives of a debt that's
still unpaid?
The cactus thorn but shields the bloom; its
beauties undiminished,
And yet, each year the seed pods break and
life goes on unfinished.
The vast lands, the wonder lands, the desert
lands I've known.

TUMBLEWEED FANTASY

By ELSIE MCKINNON STRACHAN
Santa Ana, California
The tumbleweeds came rolling through the
town,
Like phantom riders on the wind of night,
To stir the dust where time is bedded
down,
Where forty-niners sleep beneath soft light;
And as they raced along deserted streets,
The frontier west, the rush for gold re-
turned;
And I could hear the blacksmith's anvil ring,
And smell the pine wood smoke where
bacon burned.

And I could see the burro on the trail,
And hear great laughter in the bright saloon;
Now ponies stood beside the hitching rail,
Where fantasy was silvered by the moon.

Like riders come for gold, the tumbleweeds
Rode in as bold performers and were gone;
And then, as though the law had cornered
them,
I found them lined up at the fence at dawn.

DESERT CALENDAR

Nov. 9-Dec. 12—Exhibition of Paintings by Wm. P. Krehm, Twenty-nine Palms, California, Art Gallery.
Late Nov. or Early Dec.—Shalako Dances, Zuni Pueblo, New Mexico.
Nov. 30-Dec. 1 — Arizona Cattle Growers Convention, Tucson.
Dec. 1—Christmas Flower Show, Valley Garden Center, Phoenix, Ariz.
Dec. 3 — Feast of St. Francis, San Xavier Mission, Tucson, Arizona.
Dec. 8—All-Indian Christmas Party, Winslow, Arizona.
Dec. 8 — Celebration and banquet commemorating 50th Anniversary of the establishment of the Petrified Forest National Monument, Holbrook, Arizona.
Dec. 8-9—Pro-Amateur Golf Tournament, Tamarisk Country Club, Palm Springs, California.
Dec. 9—Western Saddle Club Gymkhana, Phoenix, Arizona.
Dec. 10-12—Miracle of the Roses, Our Lady of Perpetual Help Church, Scottsdale, Arizona.
Dec. 10-12 — Tortugas Indian Ceremonials, Guadalupe Church, Tortugas, New Mexico.
Dec. 10-17—Men's Invitational Golf Tournament, Thunderbird Country Club, Palm Springs, California.
Dec. 12—Feast Day of Our Lady of Guadalupe, Santa Fe and Taos, New Mexico. Celebration on eve (Dec. 11) of this day.
Dec. 12—Matachines, Jemez Pueblo, New Mexico.
Dec. 14-Jan. 9—Exhibition of art by Kit Robertson, Twentynine Palms, California, Art Gallery.
Mid-Dec.—Opening of Ski Season at Taos, New Mexico, Ski Valley; Flagstaff, Arizona, Snow Bowl.
Dec. 17-Jan. 1 — Lighted City of Bethlehem Display, Climax Canyon, Raton, New Mexico.
Dec. 20—Christmas Party for Winter Visitors, Mesa, Arizona.
Dec. 22 — Community Christmas Party, Fallon, Nevada.
Dec. 23—Salt Lake City, Utah, Oratorio Society's Annual presentation of The Messiah.
Dec. 23 and 30—Desert Sun Ranchers Rodeo, Wickenburg, Arizona.
Dec. 24—Christmas Eve in Spanish Villages of New Mexico, celebrated with little bonfires for El Santo Nino, lighted before houses, in streets and before Nativity Scenes.
Dec. 24 — Ceremonial Dance, San Ildefonso Pueblo; Night procession with cedar torches, Taos Pueblo; Ceremonial Dances after Midnight Mass, San Felipe, Laguna and Isleta Pueblos, New Mexico.
Dec. 25 — Jemez, Santo Domingo, Tesuque, Santa Clara and other New Mexico Pueblos, Dances on Christmas and three days following.
Dec. 25—Annual Shine Smith Christmas Party for Indians, Buck Rogers Trading Post, Cameron, Arizona.
Dec. 25—Deer Dance or Los Matachines, Taos, New Mexico. Old Spanish plays presented during Christmas week.
Dec. 26 — Turtle Dance, San Juan Pueblo, New Mexico.
Dec. 27-31—22nd Annual Sun Carnival, El Paso, Texas.
Dec. 31—Deer Dance, Sandia Pueblo, New Mexico.



Volume 19

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Fortified Hills in Baboquivari Valley

Man may never solve the mystery of Haak Muerto's stone walls. Who built them? What purpose did they serve? When were they built? Scientists cannot agree, and the Papago Indians who now dwell in this Arizona-Mexican border country perhaps have never known. Here are Frank Tinker's descriptions and observations of this incomprehensible monument to a forgotten people.

By FRANK A. TINKER

Photographs by the author

Map by Norton Allen

Sketches by Keetsie, Navajo Artist

FIRST HEARD of the fortified hills from Bill Carr, former director of the Arizona - Sonora Desert Museum in Tucson. Bill, whose opinion I valued highly, admitted that he could not ascribe a definite purpose to the terracing of these isolated mounds in the Baboquivari foothills near the Arizona-Mexican border, and the libraries only had scant bits of information which could be considered authoritative on these puzzling structures of a forgotten desert tribe.

I had to find out for myself. One February morning Tom King, a long-suffering partner on similar excursions, and I motored down Highway 86 to Sells in the sharp, still cold of an Arizona dawn. We drove through town and entered the graded dirt road which leads southward over the sand hills into the Papago Indian Reservation's Baboquivari Valley, and just beyond the town's last gray wattle dwelling we passed a pair of coyotes idling in the first sun.

To the east the Baboquivari range stood dark against the early light and halfway down its serrated outline rose Baboquivari Peak, center of the legends and universe of the broad-faced, easy-going Papago people. Southwest across this swelling valley floor were the low peaks of the Alvarez range.

Our road touched briefly at occasional groups of adobe and wattle houses, the winter villages of the tribesmen. In the summer the people now migrate to the cotton fields of the river valleys. But, neither the peaceful valley scene nor its people seemed related to the violence and warfare suggested by the fortifications toward which we drove.

Topawa, the first village we passed, has a new mission church. Komelik, the second identical scattered group of gray dwellings a few miles south had a deserted adobe chapel which squatted on the flat sand plain among the creosote bushes. Its age gave it more charm than the newer, larger building at Topawa. Three miles south is Supi Oidak, a narrow, foot-and-hoof packed caliche pavilion running between two short rows of aged wattle dwellings with winter-shagged ponies standing mute behind them.

At San Miguel, 23 miles south of Sells, the road ended in a gentle semicircle, and the way then became a wagon track heading east. We ascended the gentle grade of the bajada which rises from the main valley wash to the foothills below Aguirre peak. It was on this gentle slope that the Pa-

pago and those before them had made their villages and fields before the present century brought the end of violence and the means of cultivating the broader flat lands along the wash.

After a slow half hour drive over the barely discernible track we reached the butte of Haak Muerto, the best preserved of the fortified hills on the

A Papago Indian village in the Baboquivari Valley.



American side of the border. Actually, there are half a dozen other fortified hills in the Sells area and an uncounted number in the Altar valley across the border in Mexico.

This black hulk has the most extensive terracing of any in Arizona, however. Its name, which means dead Haak, bespeaks violence. According to Papago legend, this was the place where the old lady Haak, symbol of evil, was dispatched by Echio, the good creator. The setting for this murder was well chosen.

We left the car beside a wash which ran past the north foot of the volcanic mound, still two miles west of the Baboquivari's foothills. Following the wash to the base of the butte, we found two exploratory shafts being sunk by a pair of sourdoughs who were camped under canvas in a palo verde grove nearby. In all their digging and exploration they had not come across any shaped rock or other artifacts which might have helped identify the purpose of the hill's defenses.

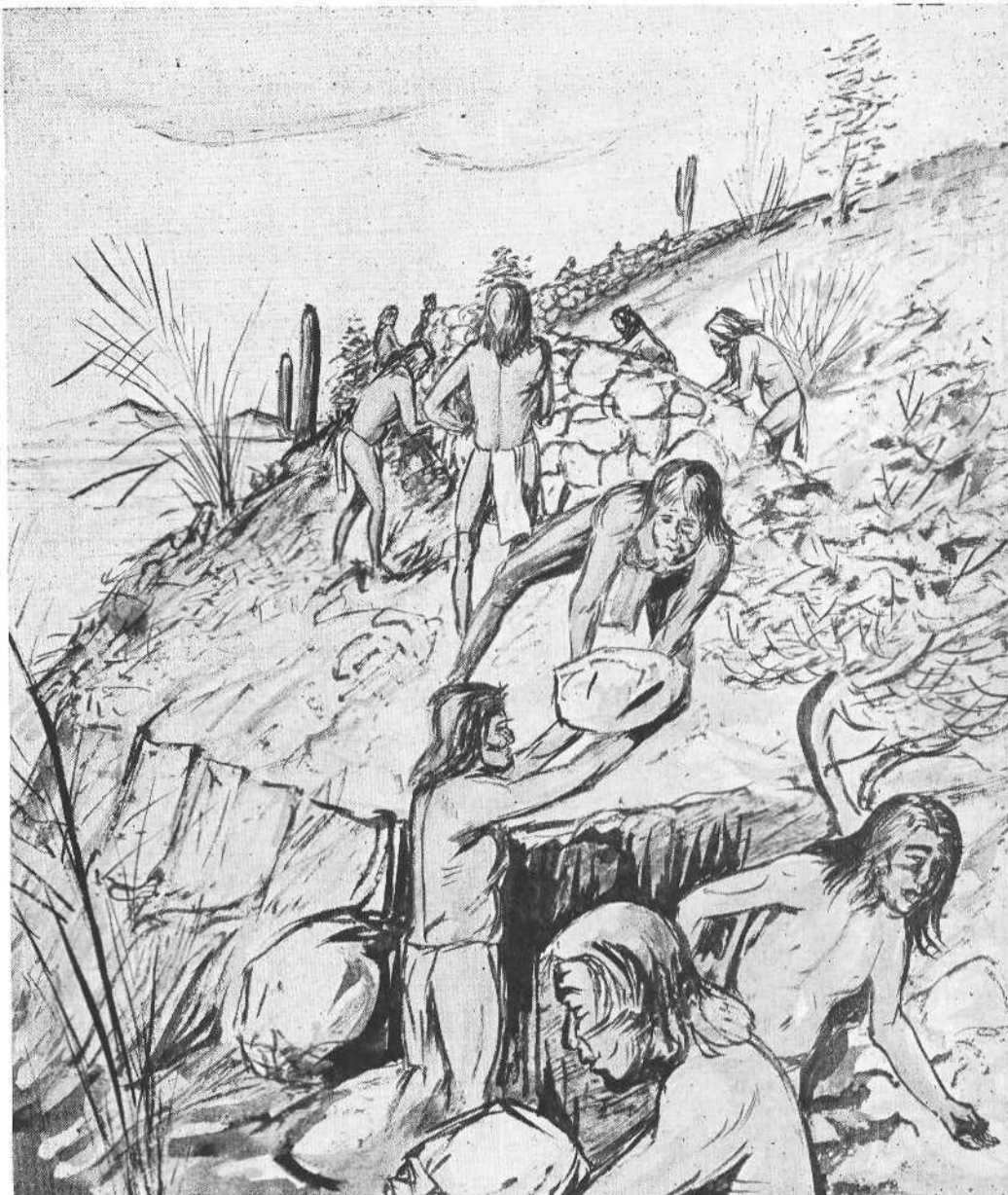
And defenses indeed they appeared to be. As we passed the northwest corner of the oblong butte, we saw the whole western slope and the terraced fortifications which latticed it, from ground level to a final parapet about 600 feet above.

My first thought was, "What a lot of work it must have been!" Considering the arduous methods of construction called for, these walls and terraces must have served some very important purpose.

Zigzagging up the moderate west slope, the walls were made of head-size chunks of native rock fitted together with little semblance of care. The uneven barricades ran from 10 to 100 yards in one direction before veering off at another angle. J. W. Hoover, writing on the *cerros de trincheras*, or entrenched hills, in the *Geographic Review* fifteen years ago, reported that he had counted 12 walls down this northwestern slope. Since they followed no discernible pattern I could not verify the number, but altogether they presented a formidable obstacle to anyone bent on storming the hill against opposition barricaded behind those rocks.

The face of the hill is nearly a quarter of a mile wide, and the walls sporadically run the length of it, following the natural contours and taking advantage of the large outcroppings and shelves of rock as they occurred. This was certainly no small job for a tribe which must have been limited in numbers by the dearth of suitable fields and the resultant scanty food resources.

Tom and I discussed the fortifications from a military standpoint, since



The Navajo artist, Charles Keetsie Shirley, prepared this concept of the construction of the pre-historic walls from such meager information as is available.

that was our common background, and it was a temptation at first to side with the anthropologist, Ellsworth Huntington, who stated in a paper written in 1919 that these terracings primarily had an agricultural use rather than one of defense. We started up the hill and found definite evidence of a leveling of the soil between the lower walls. These had been explained by some authorities later, namely Carl Sauer and Donald Brand of the University of California, as possible house sites of the pit variety, but frankly I disagree.

As for defense, the walls themselves offered a modicum of protection against a frontal assault, which would be the only kind of attack to be met in this manner. They were low and loosely constructed, and from pictures taken several decades ago they do not

appear to have degenerated with age.

Haak Muerto, like the other fortified hills in the Sells area, apparently was on the outer fringe of a civilization which had its center in the Mexican valleys of the Magdalena and the Altar rivers. The fortifications apparently had been built by the same peoples, those to the north being the outposts and therefore of inferior construction. One of the sites found in Mexico, Las Trincheras (the trenches), has been called the most elaborate prehistoric structure in the northern states of that country. Terraced along these same general lines, the Mexican hill has walls nine feet high, with abutments 15 feet broad. Atop Haak Muerto, the terraced temples I had seen among the thorn thickets of Yucatan—certainly not similar in purpose or origin,

but markedly alike in basic design—came to mind.

It may have been that Haak Muerto and other Arizona sites were built along lines accepted as the standard design rather than the site's actual defense needs. The Papago tell stories of recent battles occurring here, one during Civil War days when their own tribe used the place for defense against an unnamed Mexican enemy. If these stories are true—and the Papago sense of time is amazingly vague—the battles which ensued here must have been very short. There is no apparent way the besieged hill could supply itself with water or food. Any serious attacker merely would need to camp on the plain below and wait for thirst to break the morale of the defenders above. This being so, the hill may have served more as a rallying point than as a fort in the usual sense. And, too, attacks from Apache and the marauding tribes preceding them usually were transient, skirmishing raids rather than assaults in force, and preparations for an actual siege would not have been necessary.

Tom and I followed the walls to the top of the slope which was yellow with dried grass. The rocky soil showed definite signs of agriculture at the lower levels, but near the top the incline steepened and the very nature of the terrain would have made cultivation very difficult. The arrangement of the walls did not indicate that water

retention had been their purpose, either. Finally, the parapets on the summit of the butte certainly looked like observation and command posts.

The top of the butte was fairly flat, with eroded ravines, and in one of these we found places where corn grinding had worn depressions in the rock. On the whole, however, there were no extensive signs of former habitation, and we surmised that the hill had been used only as occasion and fancy demanded rather than as a permanent dwelling site. The very trek up the hill should have discouraged the idea of penthouse life in even the most troubled and vigorous tribes.

From the top, we got a much better perspective of the hill's layout. North and east the drop to the bajada floor was steep, to the south almost perpendicular. The west slope was the only way by which the hill conveniently could be scaled, and that was where the walls had been erected.

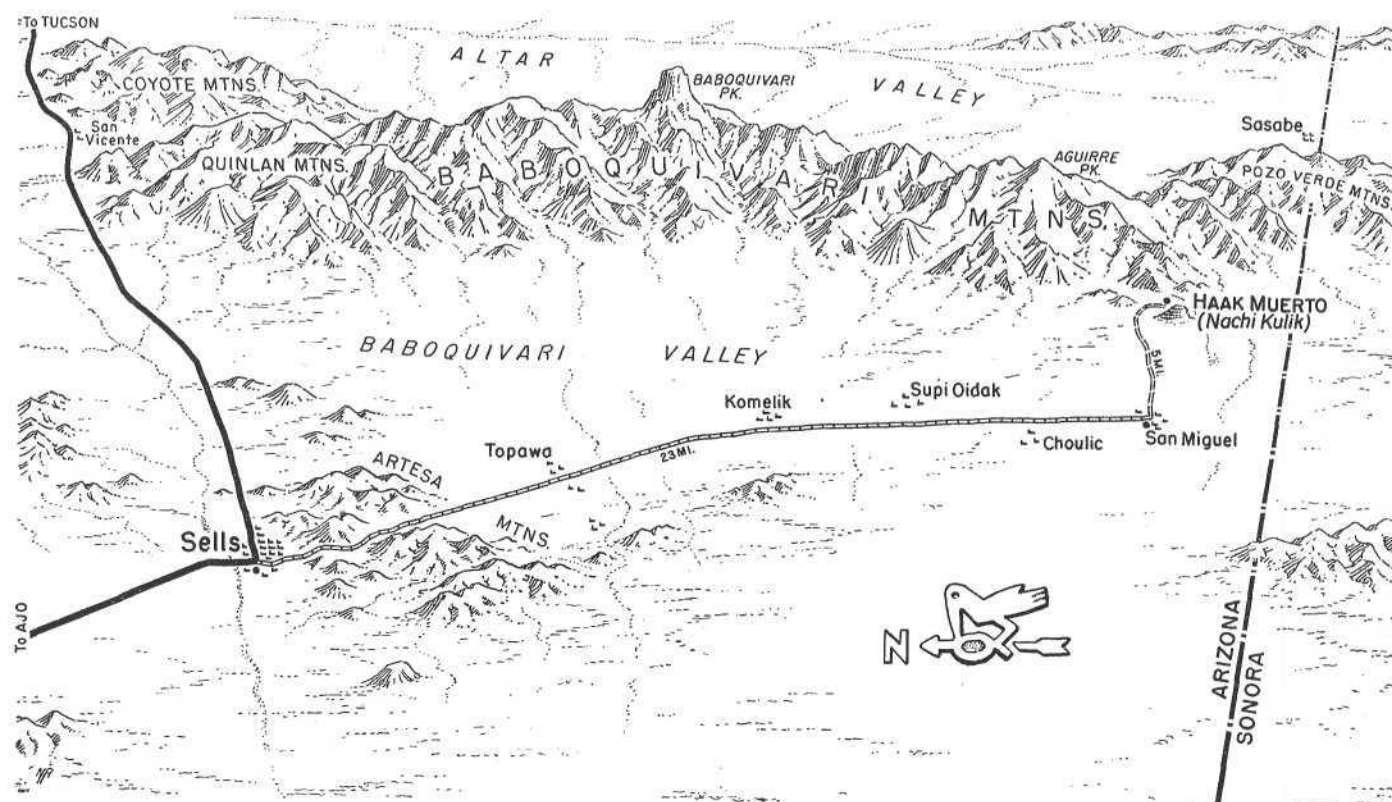
At one of the parapets I put my foot on the top rock of the wall and leaned forward to peer down the slope. The rock rolled away and crashed down the slope some distance. So I had thus unintentionally undone someone's work—someone who had lugged this rock up Haak Muerto's face many hundreds of years ago.

Although their loose construction indicate that they have not been standing long, archeologically speaking, pottery shards found on the hill show

that it was inhabited as long ago as the 13th century. It was about this time that a great drouth decimated the tribes in the area. The Hohokam, the mysterious people who probably dwelt here from the time of Christ to 1500, already had developed their system of irrigation by that time and there was an ancient ditch still discernible, running from the south drainage wash of the hill to a *charco*, or storage pond two miles away. But these enigmatic people rarely built walls of stone and whether the Hohokam, whose practice of cremation has kept us even from knowing what their actual bodily appearance was, built both the ditch and the fortifications here would be difficult to say.

It is possible the forts were the work of the Salado people, another tribe which had wandered peaceably into the area from northeastern Arizona in the Middle Ages. The Salado, although they settled amicably among the Hohokam were not assimilated into their culture and later disappeared. Moreover, there is nothing to indicate that they migrated south, where the trincheras of Mexico indicate the center of this civilization was located. To further confuse the matter, some of the pottery found nearby indicates by its design and pattern that there was an entirely unique and different people living here during this early era.

We continued to the south ramparts of the butte. Protruding from the





Tom King stands half way up the west slope of Haak Muerto. In front of him and behind, the loose rock walls slant across the entire hill face.

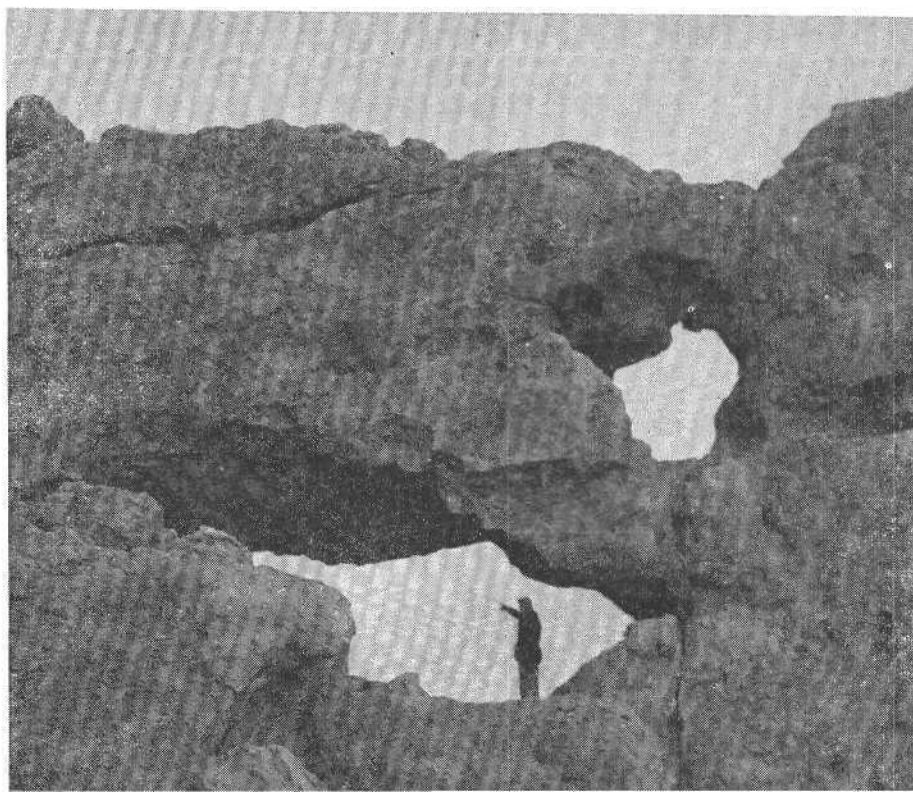
main hill are two needle's eye formations which the Papago say were caused by the old Haak's head shoving up through the side of the mountain and the god Echtoi's foot as he slipped while ridding the Indian world of her. This explanation fits the mood of the hill as we found it, since the whole aspect of the place was one of violence and depressing fear, similar in mood to those magnificent ruins of the Maya and Inca which are wonderful and subduing at the same time.

This pitiful refuge, if that is what it was, forced upon us a better understanding of the people who lived here. With a little imagination we could see them grinding a poor life from the unprofitable stretch of sand plain below, so continually in fear of their lives that their very mode of living for generations had been determined by it.

And with this, our visit to Haak Muerto was over. We had satisfied ourselves as to its reason for being, mostly by feeling through the evidence of their labors the personality and times of the people who may so desperately have built it. Before we left the crest of the hill I went back to the parapet and replaced the slab of

black rock which I inadvertently had knocked over. Perhaps wind or a shift of the soil soon will topple it again, but I did not want to remember this place as one I had injured. I believe it already has seen enough grief.

Papago legend says these cavities on Haak Muerto's face were caused when the god Echtoi subdued the evil Haak.



Four Palm Spring

On the desert every waterhole—large or small, well known or obscure, flowing sweet or brackish water—is important. All have given sustenance to man and beast. Here is the story of Four-Palm Spring, a small, obscure, brackish oasis near the Borrego Badlands—the most important waterhole in the world to those who quenched burning throats with its waters.

The author drinks from the pool at Four-Palm Spring. The flow from the spring is usually sufficient to keep the pool filled.

By WALTER FORD

ONE OF THE important watering places for desert travelers whose wanderings took them into the Borrego Badlands of Southern California was Four-Palm Spring, 3.4 miles west of Truckhaven and one mile south of Palm Wash. The spring lies in a small ravine at the base of three palm trees and unless the season has been particularly dry, the flow is sufficient to fill a pool several feet across at a lower level. The charred trunk of the fourth palm stands nearby.

I first heard of Four-Palm Spring 12 years ago from an old prospector who explored the area for signs of oil for the Doheny interests in 1896. Sometime later Bill Schnoke, who originally ran cattle in Borrego Valley and afterward engaged in ranching in Coachella Valley, told me that Four-Palm Spring was one of his favorite camping spots. Henry E. W. Wilson, veteran searcher for the Lost Pegleg Mine, often used the spring when his quest brought him into this area.

The prospector who told me about Four-Palm Spring related how he had used the spring on many occasions, until one evening while preparing to camp at the spring he found a dead animal immersed in the water. At once he concluded that the spring had turned poison and thereafter gave it a wide berth.

The subject of the existence of poison springs on the desert always has been a controversial one among the

desert fraternity, but it is of interest to note what Walter C. Mendenhall, in his "Water Supply Paper 224," states that he tested several springs supposed to contain poison, but failed to find any evidence of arsenic or similar toxin. However, he did find large quantities of glauber and epsom salts in many of the springs, which taken in the intense heat of summer by famished prospectors could well account for the many deaths that have been attributed to poison springs. I have used the water from Four-Palm Spring on many occasions, and while I have found it somewhat brackish at times, I have never suffered any ill effects from its use.

In the jeep which I use for roaming around the desert, I have installed a two-way radio telephone for use in possible emergencies when I might wish to summon aid for some mechanical difficulty when I am far off the beaten path. In the meantime the apparatus has afforded much pleasure through contact with stations all over the earth while I am off on my desert jaunts.

The Federal Communications Commission regulations require that the approximate location of a transmitting station be given whenever a call is sent out. On a warm afternoon last spring I sent out a general call from Four-Palm Spring and gave my location as Borrego Badlands. I immediately contacted an ex-serviceman in Missouri who wanted to know exactly where in the Badlands I was calling from. As the conversation continued it developed that he had been stationed near the

Salton Sea during World War II and part of the time operated an Army radio station at Four-Palm Spring just a few feet from where my jeep was parked.

A short time later I raised a young man in far off New Zealand. It was early on a Sunday morning down there and he had just gotten up to face a cold, drizzly, autumn day. It was difficult for him at first to reconcile his conception of our California deserts with the word picture I gave him of Four-Palm Spring, but as our talk progressed he expressed the hope that some day he would have the opportunity to visit the pleasant section of desert I had described.

Four-Palm Spring may be reached by traveling up Palm Wash a distance of 3.4 miles, or to the first group of palms, then proceeding southward on foot for a distance of one mile. That route, however, only is recommended to drivers experienced in negotiating sandy washes. The preferable route is to follow the old Calcite Mine road which runs directly west from Truckhaven for about 3.5 miles, then walk northward approximately one mile across several washes until the spring is reached. The tops of the palms at the spring can just barely be seen from the Calcite road. An alternate route for four-wheel drive vehicles follows an unnamed wash between Palm Wash and Truckhaven and leads directly to the spring.

"... one breath of sage upon the breeze and I forgot the lack of trees..." sang the poet when first he visited the barren Nevada highlands. And now we can enjoy the fragrance of the desert wherever we go, thanks to Howard K. Foncanon of Albuquerque, New Mexico, who has successfully captured the mysterious charm of desert scents in perfumes and incenses.

By E. W. NORTHNAGEL
Photographs by the author

7HERE WAS a time when the flowers of the desert shared their fragrance only with the hummingbirds and Indian tribesmen. But today, due to the tenacity of an eastern dude, the morning freshness of the yucca, the dry pungence of the purple sage or the sweet scent of desert jasmine may lend aromatic charm to discerning ladies anywhere in the world.

The process by which the aroma of the Southwestern desert could be transferred to the tiny vials of the cosmetics department began, unwittingly in an Ohio kitchen when eight-year-old Howard K. Foncanon tried to make perfume by crushing rose petals in water with his mother's potato masher.

This boyhood occupation burgeoned into a profitable business nearly half a century later. Under the name of New Mexicraft Co., with headquarters on the quaint Old Town Plaza of Albuquerque, aromatics of the desertland go to a growing clientele over the counter, by mail order, and through scores of nationwide dealers.

Foncanon, a tall, thin-haired man who spends much time in his laboratory, started his first serious experiments in the making of perfumes in 1921 as an employee of a wholesale drug house in Cleveland, Ohio. He had wagered with a veteran perfume chemist that he could turn out an acceptable fragrance within five years.

"I lost the bet," he readily admits. "It took me six years. But more important was my decision then and there to follow perfumery as a career instead of as a hobby."

Foncanon then began a series of experiments spanning nearly two decades. On business trips to New York City he bought rare floral oils. In his home laboratory he extracted, refined and blended scores of oils into a desired scent much like a composer weaves harmonious notes into a chord. Most of it, virtually liquefied thousand dollar bills, went down the kitchen drain.

By 1938 he had mastered an art which predates ancient Egypt. And as any artist, he sought new media of ex-



Desert Perfumist Howard K. Foncanon inspects the bud on a prickly pear cactus.

He Captured the Desert's Fragrance

pression—a fresh, vitalizing smell. His search brought him to the Southwest.

Color photography of blooming desert plants had whetted his curiosity. Could it be possible, he wondered, that these enchanting blossoms are as exciting to the nostrils as they are to the eyes?

His first trip to the Southwest was so revealing that he returned time after time with renewed dedication. Against golden sands and grotesque, multi-colored rock, beneath a turquoise sky, he found these gems of red, yellow, white and purple crowning strangely gnarled and spiny plants, permeating the hot-dry day and the brisk night air with their wild perfumes.

During 10 years he made frequent treks out of Ohio to the desert, collecting its blossoms; experimenting and perfecting, over and over, until at last he knew he could do it.

He had captured the delightful aromas of the desert!

In 1947 E. L. Moulton of Albuquerque persuaded Foncanon to investigate central New Mexico as a source of desert flowers. He found it to be generous and diversified. After only eight months of preparation he opened a colorful shop on the plaza featuring *Perfumes of the Desert*.

One by one the most appealing

desert aromas were bottled and put on the market until today he sells 11 different fragrances, representing 15 years of experimentation. Although Foncanon has poured off more than \$10,000 worth of perfume, his business has shown a modest profit and a steady increase in popularity.

Part of the reason is that his business is a personalized enterprise involving his whole family: wife Emma, daughter Shirley and son-in-law William Mollenkopf. They work together from processing to packaging.

"It's a stinking business," they quip, "but a lot of fun."

Because perfumery is a secretive art, Howard and Bill memorize all formulas. This prevents their being stolen or usurped. These same headfuls of technical data will someday be imparted to Bill and Shirley's young sons.

The three most popular desert fragrances, in order of appeal, are yucca, prickly pear and pinyon.

Yucca, the state flower of New Mexico, has white paniced flowers which are used as the inspiration for the clean, fresh yucca perfume.

The dog-eared prickly pear, cowering close to the arid ground, bears waxen red or yellow flowers from which the Foncanons and Mollenkopfs



Foncanon spends many hours in his laboratory perfecting new desert blossom perfumes.

build their sweet, spicy cactus flower perfume.

New Mexicraft offers to men a pin-yon after-shave lotion as well as pin-yon perfume for women. The scents suggest the mellow, lingering tang of the blunt-needed, wind-twisted ground pine of desert-mountain trails.

"Our newest scent accomplishment is Midnight Cereus Perfume," reported Foncanon. Source of this mildly spicy aroma is the Night-blooming Cereus, the waxy-white blooms and thread-like stamens which resemble halos.

Cereus lovers long await the June or July night of its short-lived blooming. Its buds begin unfolding in the evening and are in full flower by midnight, a moonlight blossom only the desert could beget.

Other popular scents of Foncanon's artistry are the dry, dulcet tamarisk, whose pink branch tips grace desert valleys, and the pungent sage, most basic and wide-spread of all desert scents. Other fragrances are taken from desert mistletoe, ginger blossom

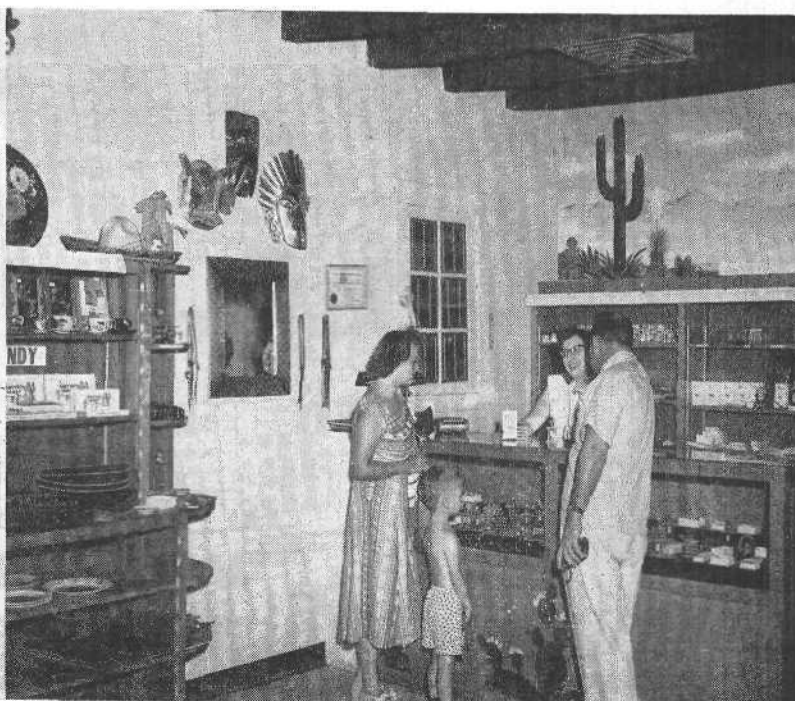
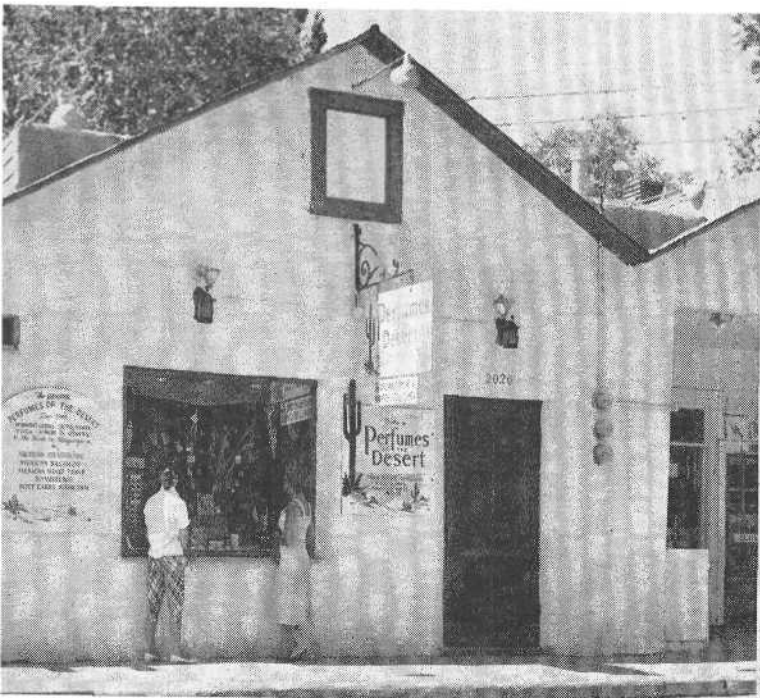
and desert jasmine. Desert bouquet is a comingling of five desert scents.

Perfumery, the science which now makes aromatic reproduction of the Southwest mesaland a reality, can be traced back 5000 years before the birth of Christ. In the tomb of Tutankhamen, who reigned about 1350 B.C., Howard Carter found containers of aromatics still fragrant — proof that perfumes were prized then as they are today.

Without violating professional se-

Retail outlet of the world's first desert perfumery fronts on 250-year-old Town Plaza in Albuquerque.

Emma Foncanon explains desert perfumes to tourists. Daughter and son-in-law also are in unique business.



crets, Foncanon explained how perfume is created:

"First a basic scent is chosen; its petals are pressed in specially prepared oil and left there for weeks. The perfume oil is then extracted from the specially prepared oil, refined and mixed with from 20 to 75 other floral oils from all parts of the world."

Several fixitives are used in this blending to make the perfume last, to add a velvety undertone, and to prohibit the quick evaporation of one of the essential oils.

Each of the fixitives is of strange derivation. Ambergris, for example, is from the sperm whale when on a cuttlefish diet. A grayish, egg-size sample of ambergris, valued at \$75, is kept on display at Foncanon's shop. Other fixitives are musk, from that male deer of the Himalayas, and civet, from the Abyssinian civet cat.

Foncanon believes perfumes should be worn daily as they are in France. He warns not to use too much, however. "Just a touch on the pulse points—behind the ears, on the neck and on the wrist—is sufficient. If it gives you a lift, it will please others."

That is the key to the success of desert perfumes—they give a lift with unusual warmth. They are priced commensurate with quality, yet modestly enough for any purse. Howard's ambition is to put the Southwest's fragrance on the woman in cotton as well as in mink.

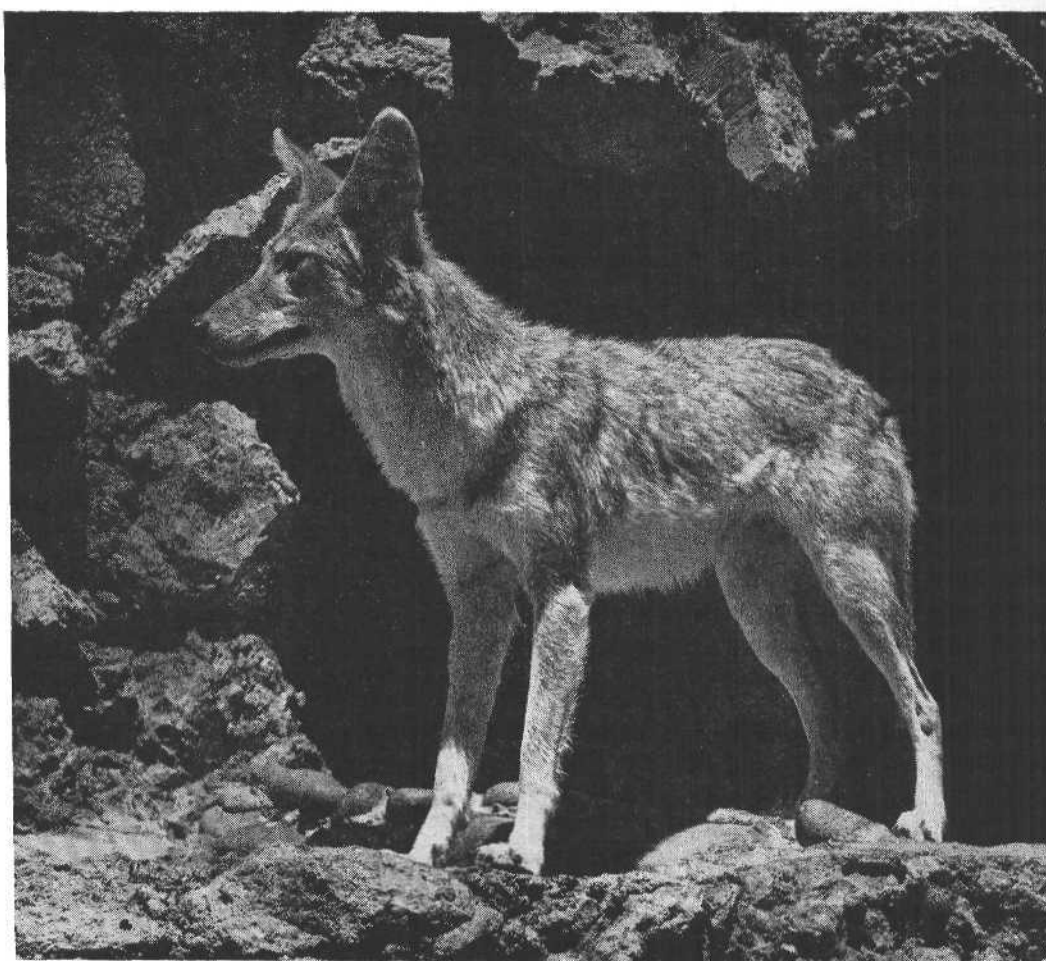
Foncanon and family put up their perfumes in stylish containers of their own original designs. Many are of crystal-like plexiglas, shaped like candles and pillars, or in elaborate tiers. Hand carved flower decorations are often used.

Their most recent innovation is Incense of the Desert. Foncanon has started with three basic scents: pinyon, mesquite and sage. An incense burner, replica of the Navajo hogan, adds to the atmosphere in the living rooms of its users.

New Mexicraft shop, a small white building at 2020 Old Town Plaza, N.W., facing the historic, 250-year-old plaza, is one of Albuquerque's points of interest. Countless tourists and residents alike, in an environment of scenic desert murals, sample—many for the first time—the subtle, stimulating aroma of Southwestern flora in lingering liquid and wafting smoke.

When originator Foncanon started this unique business, an editorial in the Santa Fe *New Mexican* was not far amiss in suggesting "he might even bottle up the odor of frioles simmering on a pinyon fire."

And so he may.



Desert country Coyote. Photograph by G. E. Kirkpatrick.

Food Habit Study Shows Coyote Does Little Damage to Farms...

RECENT STUDIES by the California State Division of Beaches and Parks on the food habits of the controversial coyote tend to place that much-maligned predator in a more favorable light.

Reason for the study, according to park officials, centers around the popular conception that coyotes are harmful in agricultural areas because of their omnivorous habits. Sportsmen have long contended that the protection of coyotes in state parks and particularly in Anza and Borrego where the food studies were made, was producing a very unfavorable wildlife balance and was harboring a large coyote population that extensively damaged surrounding crop areas.

Through the collection of 201 coyote scats during an 18 month period, and analysis of their content, these are

the coyote food items identified and their frequency of occurrence:

MAMMALS. Cottontail and jack-rabbit, 100; desert wood rat, 46; southern mule deer, 9; ground squirrels, 8; unidentified rodent, 6; kangaroo rat, 6; pocket mouse, 5; unidentified carnivore, 4; cow, 4; coyote, 3; opossum, 1.

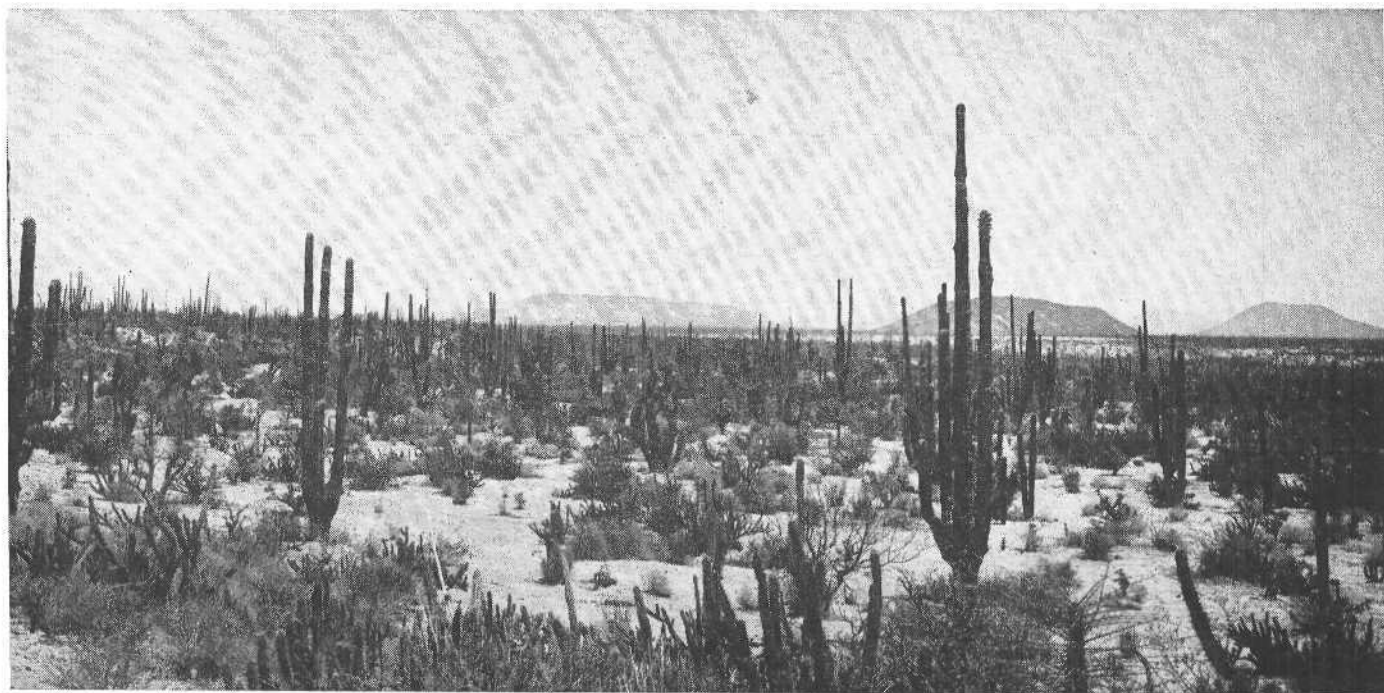
BIRDS. Mourning dove, 3; unidentified, 21.

REPTILES. Unidentified snake, 11; burrowing snake, 1; unidentified lizards, 3; chuckawalla, 4; others, 3.

INSECTS and ARACHNIDS. Insects, 12; scorpion, 1; spider, 1.

MOLLUSKS. Snails, 2.

VEGETABLE. Honey mesquite, 34; California juniper, 22; screwbean mesquite, 14; wild grape, 9; cultivated date palm, 7; sunflower family, 4; Spanish bayonet, 3; manzanita, 2; others, 3.



Cardon Forest in Baja California. In background are volcanic hills.

ON DESERT TRAILS WITH A NATURALIST -- XXXII

The Cardon, Largest Cacti in the World

Lord of all cacti growing on the face of the earth is the Cardon—tallest and most massive member of the cactus family. This month Dr. Jaeger takes you to Baja California where this giant thrives in the rich volcanic soils.

By EDMUND C. JAEGER, D.Sc.
Curator of Plants
Riverside Municipal Museum
Photographs by the author

IT IS A COMMON but very erroneous belief among many Americans that the Giant Saguaro Cactus (*Cereus gigantea*) of Arizona and adjacent Mexico is the largest cactus in the world. A real giant it is but one has only to travel through the picturesque and strange wild plant gardens of Baja California's Vizcaino Desert to become aware that there is a cactus which excels the Saguaro in height, massiveness and weight—the giant Cardon (*Pachycereus pringlei*).

I believe the tallest Saguaro is 50 feet in height whereas some of the more robust old specimens of Pringle's Cardon measure up to 60 feet and

weigh an estimated 10 tons. The greater weight of the Cardon is due to its more massive trunk and the overall bulkiness of its numerous branches. The short main trunk frequently is 30 to 36 inches in diameter. There may be 20 to 30 main branches.

The Cardon can readily be distinguished from the Saguaro even at a distance because of the shortness of its trunk and the position and overall stoutness of its branches. These leave the main stem at a sharper angle than the Saguaro branches, hence the plant is more compact. The gradually tapering more slender branches of the Saguaro come off at all sorts of angles,

sometimes twisting into grotesque forms resembling human limbs lifted in anguish or supplication.

I saw my first Cardon while traveling with Dr. John Roos south of San Felipe on the Gulf and close to the eastern base of the Sierra San Pedro Martir. It was growing in a clean sandy wash and surrounded by a field of sweet-smelling sand verbenas; beyond these was a back-screen of beautiful ironwood trees in full leaf. The upper parts of my ponderous cactus were silhouetted against a cerulean sky such as only deserts can furnish—a memorable picture it made indeed. The giant plant's great bulk, its beautiful symmetry and appearance of haleness and great strength impressed me beyond measure. I felt I was in the presence of one of God's noblest creations.

Later I was to see Cardons in numbers growing in storied crevices of granite of the steep-sided eastern slopes of La Providencia, Baja California's highest mountain (10,136 feet). This is the farthest north this cactus is found.

Along the rocky and dusty highway leading southward below San Quintin on the Pacific slope of the Peninsula, one first sees Cardons near Rosario. From then on southward it consorts in increasing numbers with such plant monstrosities as the Elephant Tree (*Desert*, Nov. '56) the Cirio (Oct. '55) and Tree Yuccas. It reaches its climax of development and numbers on the



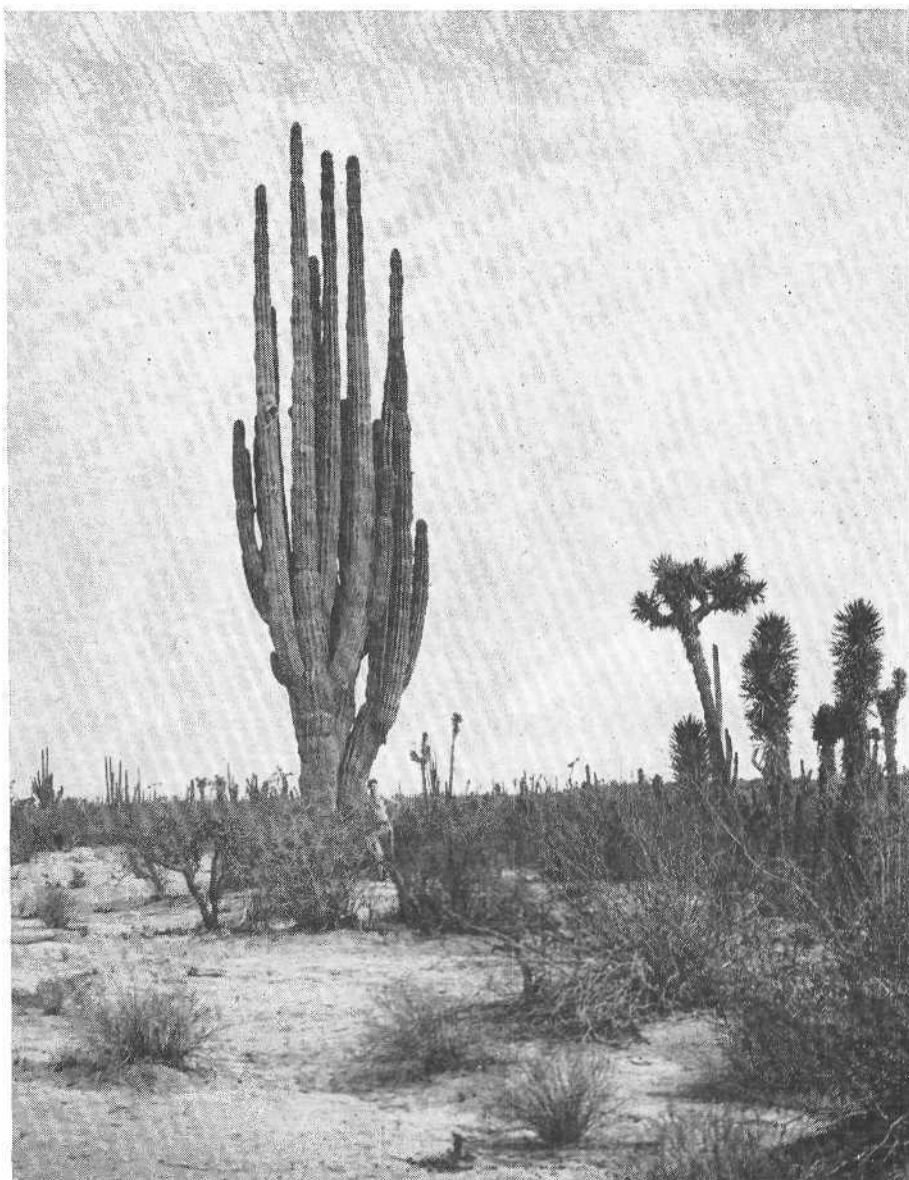
Map shows occurrence of Cardon (darkened areas) in Baja California and Mexican mainland.

rich deep volcanic soil and pedregals of lava of the mid-peninsula at about the 28th Parallel. Especially fine and luxurious, almost pure-stand forests are found along the road to El Arco, about 500 miles below the U.S.-Mexican border. The splendid Cardon pictured in this article was taken in this area. John Green, six feet, two inches tall, stands beside it.

South of the 28th Parallel the Cardon's place is taken over by the related Cardon Pelon (*Pachycereus calvus*) the Bald Cardon, so called because of the conspicuous lack of spines on the upper parts of the branches. Of the five species of *Pachycereus* of the Peninsula this one is the most abundant. It resembles *Pachycereus pringlei* but is a lower growing plant.

In the Cape Region below La Paz grows sparingly another member of the genus, the Cardon Barbon, bearded cardon, so called by the natives because of the bristly covering of the fruits which makes possible its use as a substitute for hair brushes and combs — a use still very common among the Mexicans. This species, aptly given the specific name *pecten-aboriginum* (comb of the aborigines), is also found in canyons issuing westward from Mexico's Sierra Occidental on the mainland.

The globular fruits of the Cardon attract attention because they are covered with numerous ball-shaped cushions—really collections of tan colored felty bristles. These drop off as the fruit ripens and later falls to earth, or when it is picked open by woodpeckers



A giant Cardon. Note the man standing next to it. He is six foot, two inches tall.

which feed freely on the numerous black seeds within.

The flowers with broad white wide-spreading petals are borne along the ridges of the upper ends of the branches, not just near the top as in the Saguaro. They appear in March and early April and the somewhat dry fruits are ripe by June. The Indians who once inhabited the area ground the fruit-pulp and seeds into a flour from which they made a kind of tamale. About the only other use made of the Cardon, so far as I can find, was that made by Jesuit Missionaries. According to Clavigero, the historian, these ever resourceful pioneers extracted a juice from the pulp of the branches, boiled it down and thus obtained a balsam which was reputed "to be good for wounds and bruises."

Young specimens of *Pachycereus* are very straight-stemmed and much

constricted at the base. The ashy to leaden gray spines hide the green fleshy bark and this gives the young plant a dry, almost ghostly appearance. Branching does not begin until the stem is four or five feet tall, perhaps not until much taller. Growth is comparatively slow. The oldest adults are probably several centuries old.

The woody skeleton of the Cardon consists of 12 to 15 ribs more or less fused at the base into an almost solid cylinder but separated in the younger upper parts of the trunk. All the larger pillar-like branches of this giant among cacti, as is also the case with the Saguaro, are badly scarred with the numerous excavations or nest-cavities of woodpeckers. Guilty of making most of these mutilations are the rather large Mearn's Gilded Flicker and the smaller but always noisy zebra-backed gray-breasted Cardon Wood-

pecker, a bird closely related to the Gila Woodpecker so well known and plentiful in the Saguaro forests in Arizona. The white rump-patch is very conspicuous as the bird flies.

Both birds find hacking into the soft pulp of the stems very easy. Once the nest cavity is made the sap hardens about the top, sides and bottom of the cup to form a rigid nest flask. Once a cavity has been used it often is inhabited by several other birds. New tenants may be Western Martins, Ash-throated Flycatchers or that always dignified and dainty pigmy, the Elf Owl. Some of the larger cavities may become the home of a pair of Saguaro Screech Owls or of Sparrow Hawks.

The tell-tale note of the Cardon Woodpecker when flying is a sharp,

shrill *huit, huit*, somewhat resembling the note of the Phainopepla. The Gilded Flicker possesses a vocabulary as good as any Flicker and frequently gives distinctive guttural calls as well as soft conversational notes and coos.

Cyrus G. Pringle (1838-1911) for whom the species was named was a Vermont botanist who did much pioneer botanical collecting in the southwestern United States and Mexico. In the latter country he collected most avidly for 26 years and his work there is especially noteworthy. Pringle brought in specimens of the Cardon from along the Altar River in northwestern Sonora, only 75 miles below the International Border. Sereno Watson, successor to Asa Gray of the Harvard Herbarium, thought it only

fitting to name this ponderous cactus species in honor of the man who did so much for Mexican botany.

The Mexican Herald referred to Pringle as "one of the most brilliant and scholarly men ever to grace Mexico with his presence." Mexican railroad officials honored him with passes, permitting him to travel without cost over any of the country's railroads. Dr. Pringle was as much beloved and admired by the peasants of his chosen sun-soaked country as by the Mexican businessmen, scholars and scientists. He was always most kind to them and often when hiring them to help him transport bundles of plants, "selected the heavier burden and gave his peon servant the lighter one to carry."

He collected in the most inaccessible and difficult places, from deserts to tropical jungle. The various herbaria of the world received over 500,000 of his meticulously prepared specimens embracing some 20,000 species, 12 percent of which were new to science. He laughingly boasted that he could call over 10,000 plant acquaintances and a few botanical friends by name, though he was not always certain who the President in Washington might be.

This past month two of my friends and I made a botanical pilgrimage to Altar to gaze upon the Cardons where Dr. Pringle first saw and collected these giants of the cactus world.

A rough journey it was over the desert roads between San Luis, Sonoyta and the ancient town of Altar, but it was not without its great reward. We passed the renowned Pinacate Craters and followed Father Kino's trail past the old mission at Caborca. The assemblage of Cardons was readily found "south of the Altar River," just as Pringle had said.

CHRISTMAS PARTY FOR 6000 INDIAN TRIBESMEN

Shine Smith, missionary - at - large among the Navajo, is planning to hold his annual Christmas party for the Indians at the Buck Rogers Trading Post two miles south of Cameron, Arizona, on Highway 89 this year.

This will be the 18th annual party, and Shine is expecting 6000 Navajo and Hopi Indians to be present at the Christmas festival.

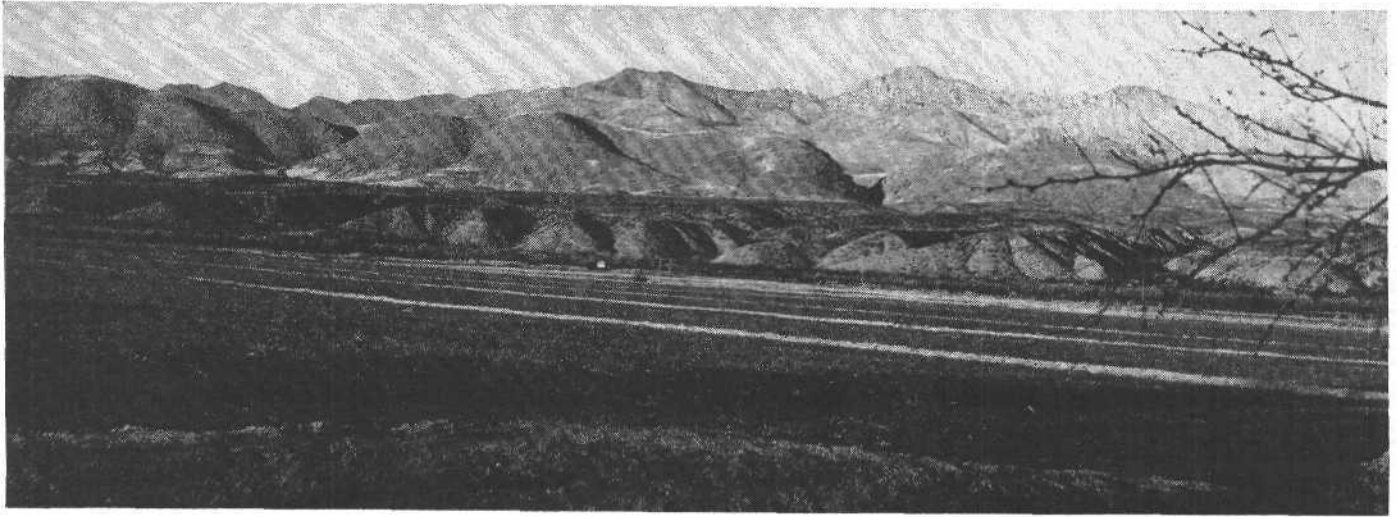
At last year's Christmas party at Cameron, Shine and his Indian helpers served 75 barbecued sheep, three tons of flour, two tons of fresh vegetables and fruit, and two tons of candy. Many tons of clothing and canned groceries were distributed to the tribesmen.

Those who wish to contribute clothing or other items to the Christmas distribution should send them parcel post to Shine Smith, Cameron, Ariz.

TRUE OR FALSE:

taken the trouble to solve its mysteries, either through travel or reading. The *Desert Magazine's* quiz provides many of the answers — a sort of desert class room. If you do not get more than 12 correct answers you are still in the tenderfoot class, 15-16 is a good score, 17-18 is excellent. The answers are on page 32.

- 1—Desert coyotes are strict vegetarians. True _____. False _____.
- 2—Ultraviolet rays of the sun are believed to have caused the petrification of wood in the Petrified Forest National Monument of Arizona. True _____. False _____.
- 3—According to fable, the Seven Cities of Cibola were located in what is now the state of New Mexico. True _____. False _____.
- 4—The Apache warrior, Geronimo, was killed in a battle. True _____. False _____.
- 5—Highway 66 crosses the Colorado River at Topock. True _____. False _____.
- 6—Certain species of birds build their nests in cholla cactus. True _____. False _____.
- 7—The rock formation known as the Great White Throne is in Zion National Park in Utah. True _____. False _____.
- 8—Wild turkeys may still be seen in the White Mountains of Arizona. True _____. False _____.
- 9—The capital of Nevada is Reno. True _____. False _____.
- 10—*The Winning of Barbara Worth* by Harold Bell Wright is the story of the reclamation of the Imperial Valley of California. True _____. False _____.
- 11—Bill Williams was a famous steamboat captain on the Colorado River. True _____. False _____.
- 12—The famous Rainbow Bridge in southern Utah was built by prehistoric Indians for ceremonial purposes. True _____. False _____.
- 13—Mesquite trees shed their leaves in winter. True _____. False _____.
- 14—The native Elephant tree is found in certain parts of Arizona. True _____. False _____.
- 15—First white men known to visit the Carlsbad Caverns in New Mexico were Spanish padres. True _____. False _____.
- 16—The habitat of the Cocopah Indians when the white men first came West was along the Colorado River at Needles, California. True _____. False _____.
- 17—A rattlesnake always has a pattern of diamond-shaped markings on its skin. True _____. False _____.
- 18—The rapids which Major Powell named Hell's Half Mile are in the Grand Canyon of the Colorado. True _____. False _____.
- 19—The Glen Canyon dam soon to be built in the Colorado River is to be in Arizona. True _____. False _____.
- 20—The Roadrunner—clown among desert birds—is incapable of flight. True _____. False _____.



Mesquite limb from the right points to the dark gash of Box Canyon in the Gila Mountains. Gila River in the foreground.

Smoky Chalcedony in the Gila Range

If you are looking for a field trip fashioned for an outdoor-loving family group, park your car at the mouth of Box Canyon near Fort Thomas, Arizona, and head up the wash. There's a treasure chest of chalcedony a short distance up the canyon—and the thrill of adventure for every member of the family.

By FENTON TAYLOR
Map by Norton Allen
Photographs by the author

FOR MANY years saguaro-lined Box Canyon north of Fort Thomas, Arizona, in the heart of Graham County, beckoned me to explore its shadowy, mysterious depths. Every year I vowed to do so, but it took the added incentive of prospecting for gem materials and mineral specimens to spur me into action.

I made plans for my first trip into the area immediately after a local rancher told me he had noticed "a lot of waxy-looking, sort of brown and bluish rocks" up the left fork of the canyon.

Since my two boys, two girls and wife, Bessie, are as enthusiastic about field trips as I, the outing became another family affair. Rockhounding appeals to me for this very reason—the entire family can participate in the joys of hiking, exploring and discovering together. And what a welding influence on family ties is the field trip lunch when we study and talk over the specimens collected.

The January day we selected for the trip was perfect. Nature pushed spring ahead two months and gave us full measures of blue sky and golden sunshine.

Nearing Fort Thomas from the east

on Highway 70 that morning, we could see the rocky gash of Box Canyon to the north, surrounded by flat-topped mesas before it slashed through the short range of round hills.

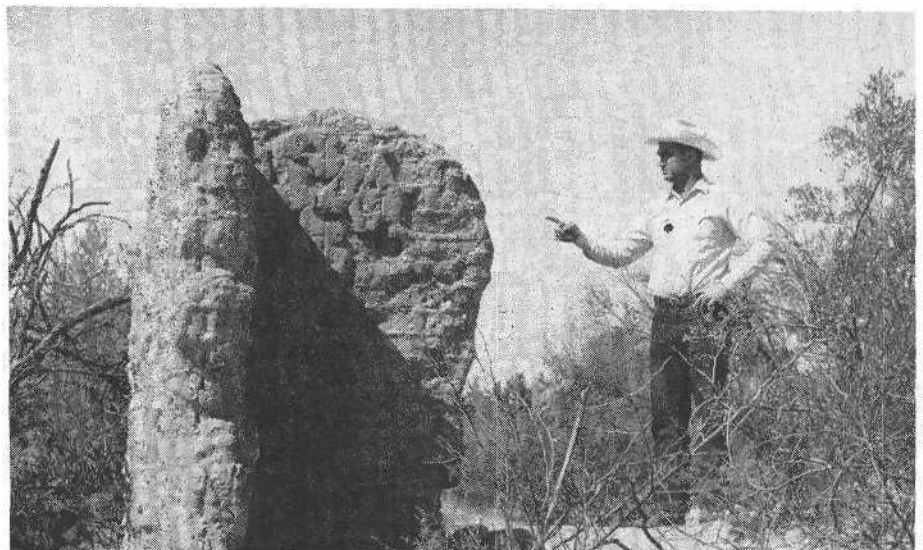
Distance diminished the towering saguaros on its slopes to the size of bristling whiskers, and the craggy purple peaks of the Gila Mountains cut a sharp uneven pattern against the sky.

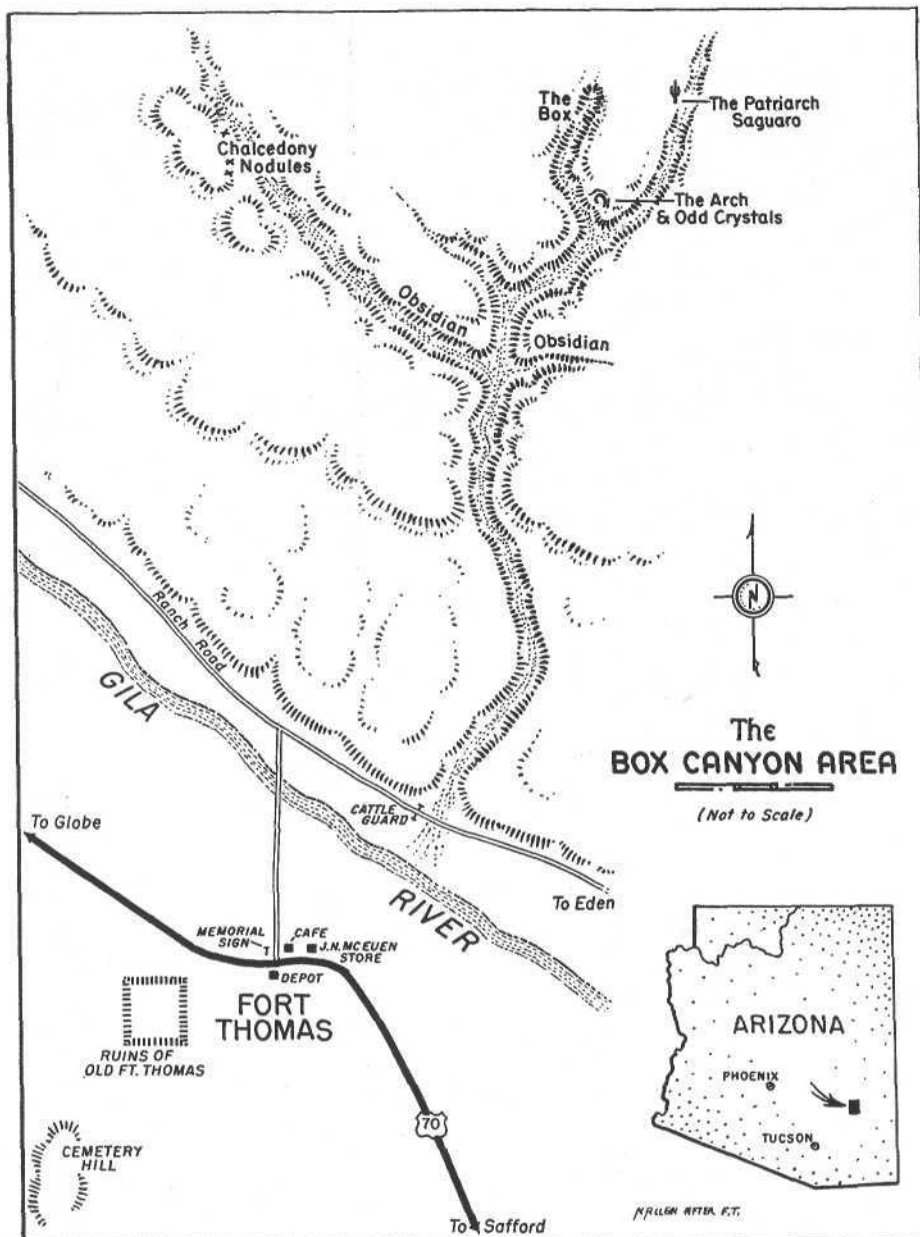
We drove into town on the lazy S curve the highway makes through it and stopped at J. N. McEuen's combination general store, service station and postoffice.

Fort Thomas is not much to look at, huddled between the Gila River and the creosote-covered foothills. It has a beautiful high school building, an elementary school overlooking town from its hilltop site, a cafe and two general stores. The homes are scattered on both sides of the Southern Pacific Railroad tracks which cut the town in half.

Nevertheless, it is the hub of upper Gila Valley's ranching and farming area, and its colorful history goes back

Fort Thomas Storekeeper J. N. McEuen points to the last standing adobe wall of the long-abandoned army post which gave the community its name.





supply route to the booming mining center of Globe, 70 miles to the west. Many trails from the east converged near Fort Thomas into the rough, tortuous hill road which led westward through Apache territory.

Later, when the Southern Pacific spur line was being pushed toward Globe, construction was halted a few miles beyond the fort. The Apache Tribal Council refused to grant the railroad a right-of-way across the reservation.

Three years of negotiations with the Indians ensued while supplies for Globe came by rail to Fort Thomas and continued overland by wagon train. Railway officials offered the Apaches beef, tobacco and many other articles in an effort to reach an agreement.

Finally the Indians asked for and were granted free transportation on all freight trains passing through the reservation. This privilege was in popular use for 30 years.

Nearly every freight train traveling the area carried some human cargo—long haired Apache men wearing bright shirts and black felt hats, and Indian women in colorful and voluminous dresses holding children by the hand and babies on their backs. Today most of the Indians have their own pickup trucks and autos.

We followed McEuen the hundred yards to the ruins of the old fort. Rusty iron fragments and broken dishes were strewn all around. Fort Thomas, with its many memories of garrison days when Apaches threatened to renew their warlike ways without warning, has nearly disappeared in the passing of time.

We continued to the old fort cemetery, some distance to the south. No soldiers' graves remain, for bodies of the troopers were removed to a national cemetery when the fort was abandoned. Even so, the flat cemetery hill still carries many mounds and weathered board markers.

We returned to town and McEuen gave us directions to Box Canyon:

"Drive down to the depot and turn right along the gravel road to the river. You can cross easily for it is nearly dry.

"Turn right at the fork on the other side. This is a ranch road and is kept in good condition. Follow it around the hills until you cross a cattle guard. The post by the guard has a steer hide tied to it. Right in front of you is a wash—the entrance to Box Canyon.

"Many uranium prospectors have been up that way recently. One fellow drove his Cadillac right up the wash to Box Canyon proper, but I don't

over 70 years to when it was an army post.

McEuen invited us to visit the fort ruins and we gladly accepted. He took us west a quarter mile past the Southern Pacific depot where we parked near the tracks and walked across them, climbed through a barbed-wire fence and threaded our way among the mesquites.

"Actually," he said as we walked on, "very little of the old fort remains. Just one adobe corner stands. Mounds of dirt, rusty mule shoes and broken bottles and dishes mark the site.

"In the old days the San Carlos Indian Reservation fence ran north and south through here and Fort Thomas was built just inside that fence. Later the reservation boundary was moved westward to its present location."

At first an army post known as

Camp Goodwin was established a few miles southwest in a swampy spring area. Plagues of mosquitoes and accompanying malaria caused the rebuilding of the camp nearer the river. The new post, named Camp Thomas, was officially opened on August 12, 1876. Seven years later it became Fort Thomas.

Civilian activity followed close on the heels of the new army camp. Just outside the reservation fence grew a collection of saloons, stores and residences. This settlement was called Maxey after one of its founders. When the fort was abandoned on April 10, 1890, Maxey fell heir to the better known name of the army post. Some of the original buildings still stand in the town, while others are falling into ruin.

During its more active days Fort Thomas was an important link in the

advise using anything but a jeep or pickup in there."

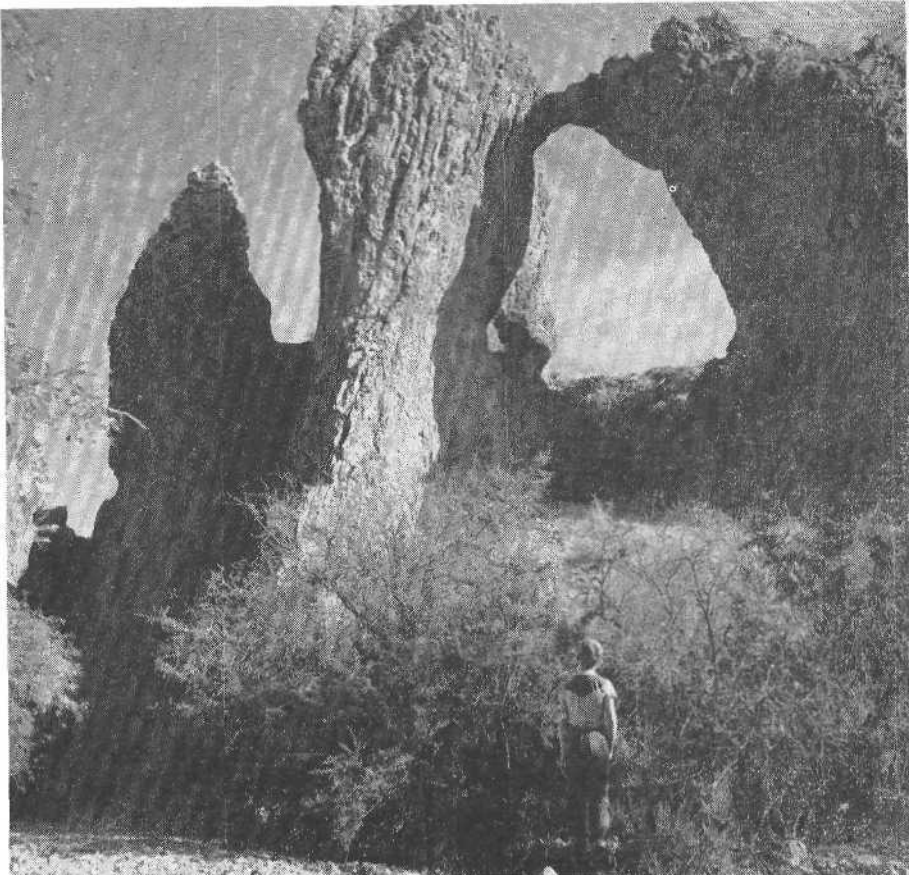
With a cheery smile he waved us on our way and soon we were crossing the trickle of water in the river. A few minutes later we rumbled over the cattle guard and parked on the other side.

One look at the rocky wash convinced me that I did not want to drive my sedan up it. So we shouldered our gear and began hiking at a leisurely pace, the children scouting ahead while we brought up the rear.

Box Canyon wash bows east in its course through the hills. At every bend the tall clay banks, carved by the waters of countless years, displayed their sedimentary structures.

The tiny greenish-yellow leaves and pungent odor of creosote and sparse growth of mesquite and catsclaw were all about us. Clumps of bunch grass touched the hills with a light gold color and we saw occasional clusters of prickly pear and hedgehog cactus. The saguaros of Box Canyon were not yet in sight. I was told that this stand of saguaros was the most easterly growth of the species in the United States.

A mile of hiking brought us into view of the first saguaro. It stood on the left bank, beautifully symmetrical against the sky with a straight trunk



Arch at the upper end of Box Canyon.

and arms of nearly equal length growing up from the trunk on all sides. We were thrilled by its majesty.

It was a relatively young plant with a fresh green waxy corrugated skin

and vertical rows of yellow spines. To me it symbolized everything honorable in life. May it always stand so—undefiled by those who delight in defacing the beauties of Nature!

Ahead appeared the notch of Box Canyon, a perfect V, supporting a liberal growth of saguaros. Marlene, our eldest daughter, looked at the canyon and remarked, "If those are the jaws of the canyon, it really has a bristly beard!"

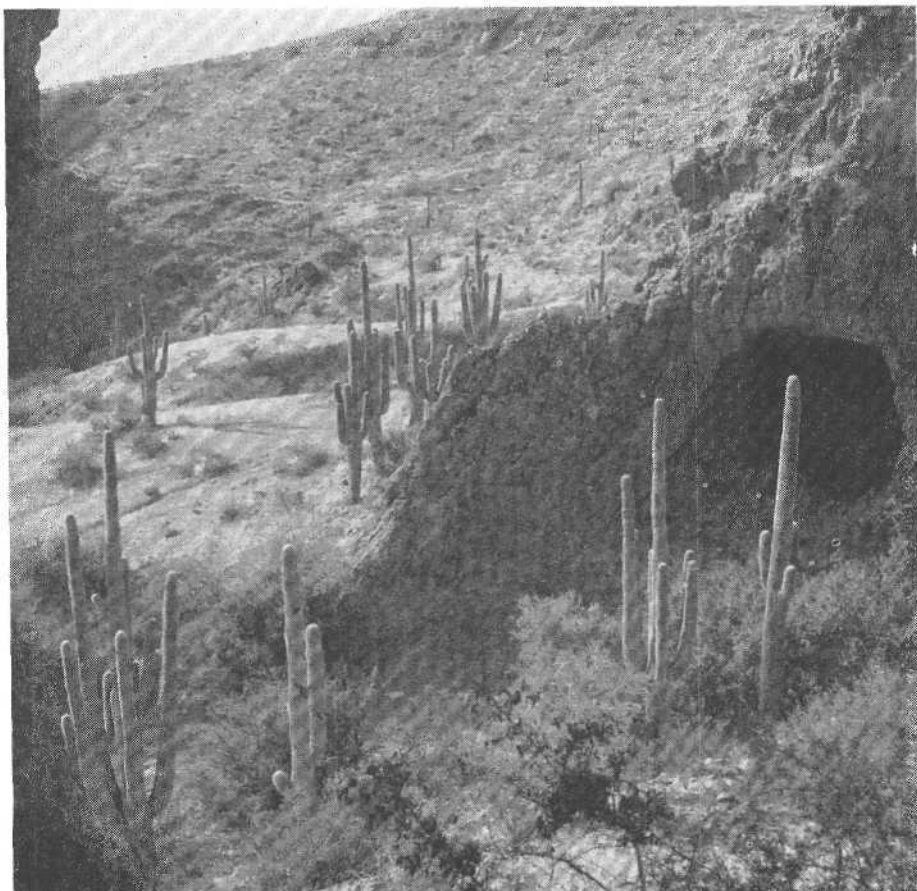
The wash narrowed rapidly and soon the towering rocky walls were looming over us, even more awesome than they appeared from the highway.

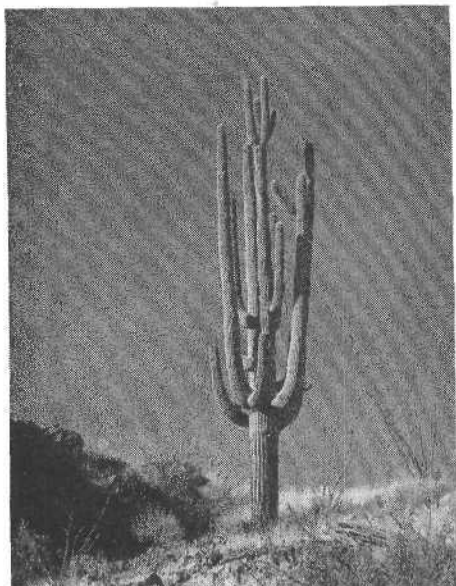
All along our route there was a profusion of rhyolite boulders and many blocks of black and brown obsidian in the wash. The canyon was cut through a rhyolite mass, much of it showing the faint wavy lines of flow structure and small round vugs, some of which contained small quartz and calcite crystals. In the upper part of the canyon are whole hills of black and reddish brown obsidian, but none solid enough to be of gem quality.

Further up the wash we discovered widely scattered bits of waxy chalcedony, some of it in swirling roses. It varied in color from white to the yellowish-brown of the smoke that boils from the center of a pile of burning tumbleweeds.

I called it smoky chalcedony, but after lapidary friend Rex Layton cut some of it, he renamed it Ostrich Plume Agate for its markings closely resemble drooping feather plumes.

Many saguaros grow around the black mouth of this bat cave, at right.





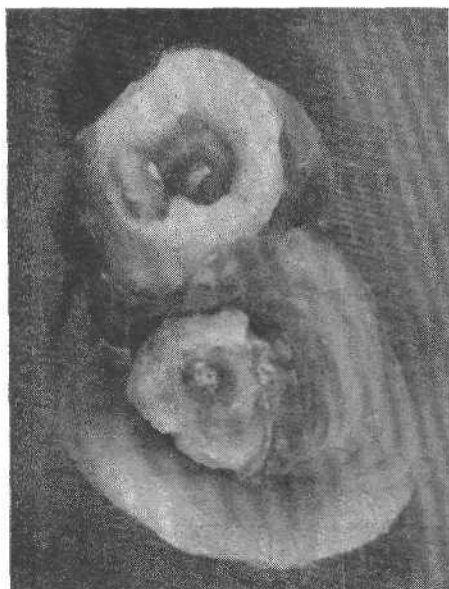
"... as we neared the summit we saw a last magnificent saguaro, undoubtedly the patriarch of them all."

We turned westward at the left fork of the canyon, marked by a clump of mesquite, in search of the main chalcedony deposit.

Hiking between narrowing canyon walls, we came to a series of rock drops about five feet high. We clambered up these, threaded our way around the larger boulders and climbed into a wider section of the canyon.

Here we found the chalcedony. Much of it is scattered on the ground over the hills. I noticed many chalcedony seams weathering out of the hill-sides. Eons ago hot magmatic waters dissolved much silica and other minerals from the rocks in this area and kept them in a fluid reservoir until plutonic forces caused the solution to

Double chalcedony rose in white to smoky brown colors. Specimen fluoresces a brilliant light green.



rise, thrusting the thickening silica gel upward to open and fill fissures and fractures, to cool and crystallize into veins of cryptocrystalline chalcedony, the added minerals responsible for the smoky hue and lines of the waxy rock as we found it.

Nearly all the chalcedony here showed this smoky color and most of it fluoresces a brilliant light green under the short wave lamp.

My prize find I named Mr. Chalcedony. His mouth is open wide and the upper lip is twisted in a face pulling contest. The waxy lips are a deep yellowish brown. The amazing thing about Mr. Chalcedony is his teeth. He has a full set of lowers, a complete curve of quartz crystals in precise tooth location. But, alas, his upper teeth are missing. Undoubtedly he mislaid his upper plate.

We collected a few more pieces of this material and returned to the main canyon. Here we saw a huge rather shallow bat cave full of guano.

The canyon widened and a troop of saguaro paraded through it. A few hundred yards ahead the walls closed in abruptly to a mere aisle. Then we came up against the blank wall that gives the canyon its name.

Terrell, our oldest boy, dug a hole in the damp sand at the base of the wall and water began filling it. The winter's drouth had robbed Box Canyon of its trickling spring, however.

Behind us a huge natural arch curved high above another guano-filled cavern. We climbed the hill under the arch and discovered clusters of quartz crystals on the slope beyond.

These specimens are extremely unusual for many are hollow. They exhibited the beginnings of termination, but the point was missing and the crystal itself was only a shell.

Another cluster showed hexagonal foundations, as if Nature had only started to build them, but had never completed the job. Never before had I heard of or seen such amazing specimens.

We dropped down into the new canyon and followed it to the top of the hills. As we neared the summit we saw a last magnificent Saguaro, undoubtedly the patriarch of them all.

By this time the afternoon was nearly spent and we returned to the car. Someday we will spend another day in Box Canyon. Perhaps I will be able to find Mr. Chalcedony's missing teeth.

Hard Rock Shorty of Death Valley



"Nope, we ain't had a horse thief n'r a stage robber in Death Valley fer 11 years," said Hard Rock Shorty. "We don't even take the money outta the cash drawer nights, an' the hinges on the safe door is so rusty yu can't even git it closed."

Hard Rock edged over a little further on the bench in front of the store to make room for another tourist who had just arrived at Inferno.

"Ol' Pisgah Bill is a harmless guy, but yu gotta give 'im credit fer bringin' law an' order to Death Valley," Shorty went on.

"Pisgah Bill ain't no officer, but he did a better job than all the constables we ever had around here. There usta be a lot o' bad hombres durin' the gold boom. They had a hideout up near the head o' Eight Ball crick, an' anybody who liked livin' stayed away from there.

"All except Pisgah. He was a peaceable cuss, an' never harmed

nobody. An' when the wind blew all his chickens away he had to do somethin' else fer a livin'. They wuz a tiny meadow just below the spring up Eight Ball Canyon, an' Bill decided to try farmin'.

"He dug a ditch from the spring down to the meadow and planted beans an' popcorn. Had a good crop too. But one day, jest when the corn wuz gettin' ripe we had one o' them sizzlin' days. Was so hot it melted the anvil over in the blacksmith shop.

"Well, about mid-afternoon that corn started a poppin'. Sounded like a whole army o' machine-gunners up in them hills. Kernels wuz flyin' in all directions fast and furious. Killed a burro an' three coyotes, an' if Bill hadn't run like hell fer the mine tunnel it'd killed him too.

"An' we ain't had one of them stage robbin' scoundrels around here since."

LIFE ON THE DESERT

We Decorate for the Holidays with Desert Plants ...

The first Christmas took place on the desert in a setting of sand, star-filled skies and arid-land plants. Here is how one modern desert family decorates its home for the holidays in a truly traditional style — with tumbleweed, mescal, mesquite and cacti.

By KAY GREGOR

Photographs by Doug Wright

WE GIVE Christmas-on-the-desert a festive and happy appearance by using native plants in our decorations. We dress up our home for the holiday season with painted mesquite bushes, gilded cactus, whitened tumbleweed and colored stalks of yucca and mescal.

During the 15 years we lived in northern Minnesota, we made a ritual of going to the nearby woods to cut a perfect specimen of balsam fir or spruce for our Christmas tree. With much ceremony we stood it in our living room and decorated it with lights, tinsel and colored balls. We used armfuls of other greens for tables, mantels and doorways. It was several years after we moved to Arizona before we were able to adjust our Christmas spirit to our new sun-filled environment.

We have learned to love the desert with an enthusiasm that surpasses the take-it-for-granted attitude of the native residents. Just after we arrived someone asked, "Don't you just love the desert?" We could only smile politely and wonder what they meant.

At first glance there is nothing in this dry, barren country to compare with the wild growth, green trees and radiantly colored lakes of the north woods. Since then, we have mellowed in the sunshine and warmth. After spending many Sundays and holidays exploring the desert, arroyos and foothills, we have learned to love the gold and brown and white of this country

as much as we did the greens and blues of Minnesota. We are fascinated by the far vistas and the infinite variety of desert plants at our feet. Their strange shapes and amazing aptitude for survival have challenged us to the complicated task of identifying and

collecting them wherever it is lawfully permitted.

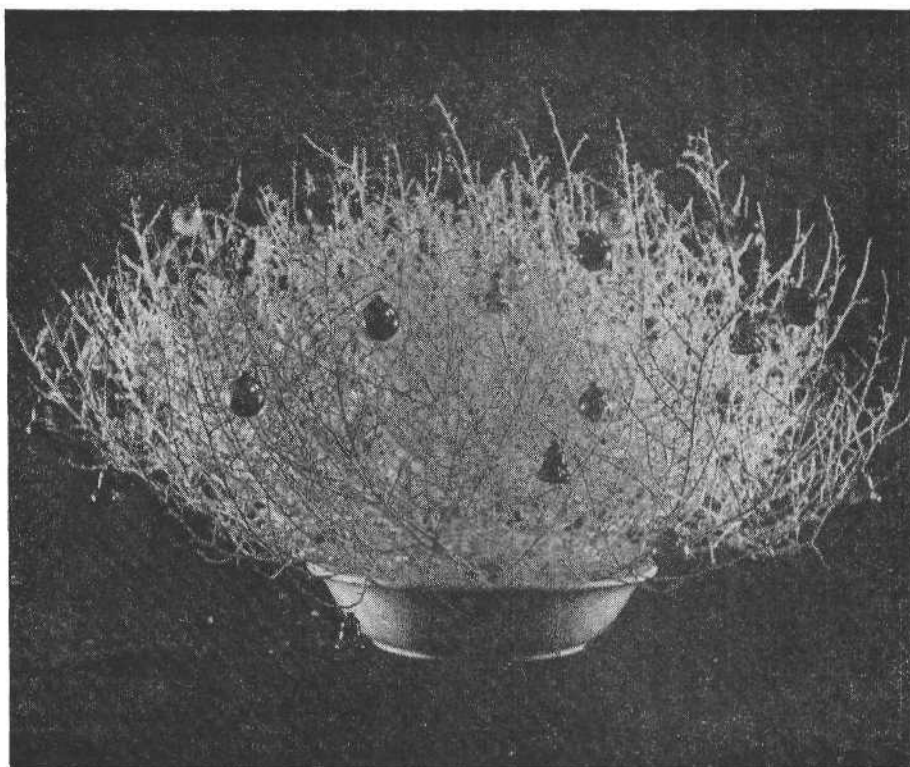
Our back yard is covered with beds of cactus and desert flowers which my husband daily tends and admires. He proudly points out to all visitors that his native garden provides a succession of blossoms from March to September followed by a colorful array of fruits.

When Christmas approaches we naturally turn to this garden and to the desert for our festive decorations.

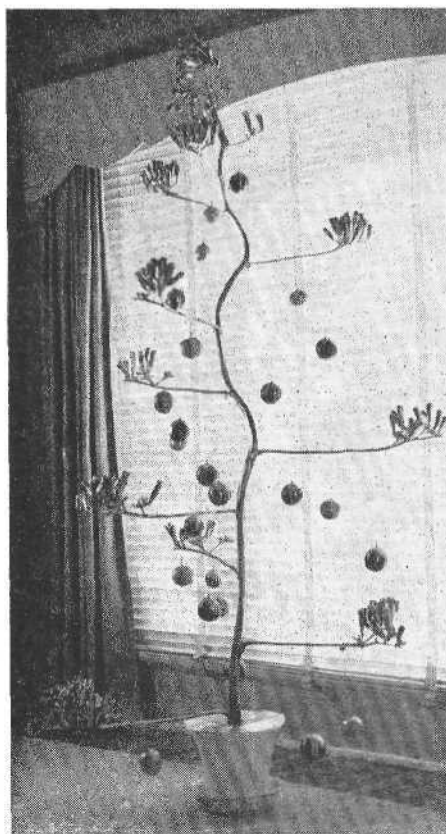
For a Christmas tree we cut a six foot stalk of a century plant which has bloomed the previous summer. The opened pods on the short horizontal branches are shapely and graceful. Before we bring it into the house, we spray it with thinned paint in a combination of colors. Sometimes we paint the stalk green and the pods red; sometimes we give the whole plant an overall coat of chartreuse to harmonize with the color scheme of the room it is intended for. It improves the effect to drip the pods and streak the branches with gilt or silver or a darker color. We use either traditional Christmas tree ornaments or painted gourds, cat-claw and pods from the desert for decoration. Such a Christmas tree is surprisingly effective and personal.

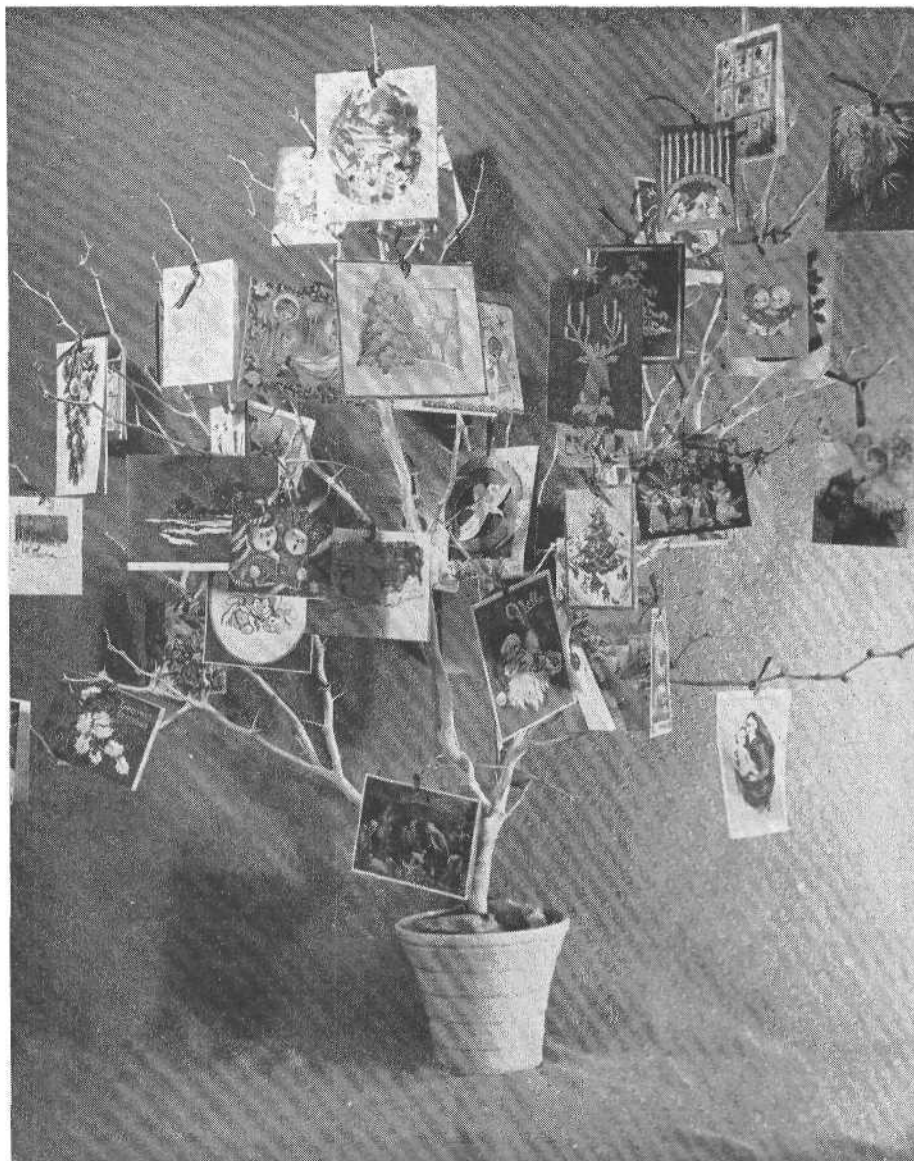
A table tree is provided by the dried

Desert Christmas Tree—the stalk of a century plant which has been sprayed in many colors and decorated with bright ornaments.



Tumbleweed centerpiece for the Holiday table. While sprayed paint was still wet author sprinkled the tumbleweed with artificial snow to produce this pleasing effect.





Christmas cards are attractively displayed on the limbs of this dead mesquite tree.

stalk of a yucca. We find a full, well-rounded blossom about four feet tall. We like these best when sprayed in a light shade. After the second or third coat we sprinkle our tree with mica flakes for glitter, and then decorate it with tiny colored balls, the smallest fit nicely in the opened pods. We usually add tinsel birds or butterflies for interest.

Another favorite is the card-tree. We bring home a three or four foot mesquite and spray it light green or Santa Claus red and set it in a pot of sand on a table or room divider. Then, as the Christmas greetings arrive, we tie them to the branches where they hang all season to remind us of far-away friends.

For the dining table we especially like a whitened tumbleweed. We spray it first, and then sprinkle artificial snow on it while the paint is still wet. Hung with small ornaments it combines

Christmas and the desert in a charming way.

We often cut branches of prickly pear, cholla and ocotillo for decorations, too. Of course we use gloves and tongs and approach the cactus with proper respect. After they are sprayed with gilt, aluminum or colored paint, they can be arranged in attractive bouquets for either dining or living room. They make an appropriate background for the Manger scene too, for the first Christmas was on the desert.

After the Christmas season is over, we find it hard to discard the painted desert plants. Usually we store them in the garage cupboard. The mesquite tree is sometimes used over again for a valentine tree or a birthday party. The tumbleweed can be decked out with green shamrocks for St. Patrick's Day. The yucca blossom is redecorated with Easter eggs.

These desert ornaments provide an

endless variety of uses and give us great satisfaction in making something festive out of what we have close at hand. They also soothe our conscience because we do not need to destroy a living or useful plant for our interior decorating. The gathering and painting of the desert's Christmas products is a joyous family project which always produces in us the happy holiday spirit.

THE *Desert* MAGAZINE CLOSE-UPS

"I fell in love with the Southwest on sight," declared Annette Richards, author of this month's "In Tucson They're Fighting the Litterbug."

This attachment began in 1938 when she made the first of several camping trips to the Southwest from her birthplace, Philadelphia. Mexico also intrigued her and she lived in that country for two years where she furthered her free lance writing career. Miss Richards' work has appeared in many national publications and she recently completed her first non-fiction book.

In December of 1953 she went to Tucson, Arizona, for a visit and "like the man who came to dinner, I just stayed on—I love it here." She is recording secretary of the Tucson branch of the National League of American Pen Women and honorary member of the city's Anti-Litterbug Committee.

* * *

E. W. Northnagel, author of "He Captured the Desert's Fragrance" in this month's issue, is an aircraft controller for the C.A.A. at Albuquerque full time—and a writer only part time, although his work has appeared in many publications.

"Southwestern lure has become our strongest interest since we moved to New Mexico from the East," he said, speaking for his wife Toni and daughters Vicki, 10, and Nancy, 4. Northnagel started his westward migration from Philadelphia while his wife is a native of Iowa.

* * *

"We Decorate for the Holidays with Desert Plants" in this month's *Desert* was written by Mrs. Kay Gregor of Douglas, Arizona. The Gregors and their four children moved to the Southwest in 1947 from the Iron Range in Minnesota. Her husband, Judd, is a junior high teacher and she teaches part-time. Mrs. Gregor is a member of the Huachuca Writers' Club.

In Tucson They're Fighting the Litterbug..

War has been declared in Tucson, Arizona—and it's a war being vigorously fought on several fronts. School children, government agencies, service clubs, businessmen and individual citizens have joined forces to crush the Litterbug. Here is one city's answer to the tin can blight on her roadways—and this project is one that may well become a pattern for crusades in every community in the land.

By ANNETTE H. RICHARDS

A PECULIAR ACTIVITY characterized Cragin School in Tucson, Arizona, one weekend last spring. A dozen Cub and Boy Scouts led by Rocco J. Andresano, chairman of the local scout committee, helped householders dump trash, litter, junk and debris from their cars into a capacious city garbage trailer. Broken furniture, old newspapers, tree trimmings and discarded tin cans almost overflowed the trailer and the total haul from this one site was two and one-half tons. The Tucson Stop the Litterbug Committee climaxed its spring anti-litter drive with similar cleanups at nine other school yards.

Just how virulent is the Litterbug in Tucson? Probably no more so than elsewhere—but this was no reason for complacency. In the five picnic areas of nearby Sabino Canyon, at least 160 man hours a week are required to keep pace with the litter. In the six recreation areas comprising 70 acres on adjacent Mt. Lemmon, 360 man hours are needed each week to maintain a minimum sanitary standard. In the entire Coronado National Forest, of which these two areas are a popular part, the 1955 Litterbug cost was \$40,-827.17!

Tucson Mountain Park west of town spends more than half its limited budget on Litterbug cleanup. The accumulation of beer cans dumped by carpools of workers returning daily from San Manuel north of Tucson seems as inevitable as the sunshine of Southern Arizona. The road outside the main entrance to Davis-Monthan Air Force Base east of town, despite regular policing, still yields six to eight truckloads of beer cans each week. The Litterbug problem is universal. And Tucsonans have decided to solve that portion of it which is close to home.

Last fall Joseph F. Carithers was

searching for a suitable topic for the next meeting of the Arizona Conservation Coordinating Committee, of which he is chairman. As Superintendent of the 45-square-mile Tucson Mountain Park, his sentiments on Litterbugs are understandably strong and he decided on this for a program theme. He contacted Morley Fox, Arizona representative of Keep America Beautiful, Inc., the national anti-Litterbug organization, and asked for his help in launching an anti-Litterbug campaign in Tucson. Fox readily assented.

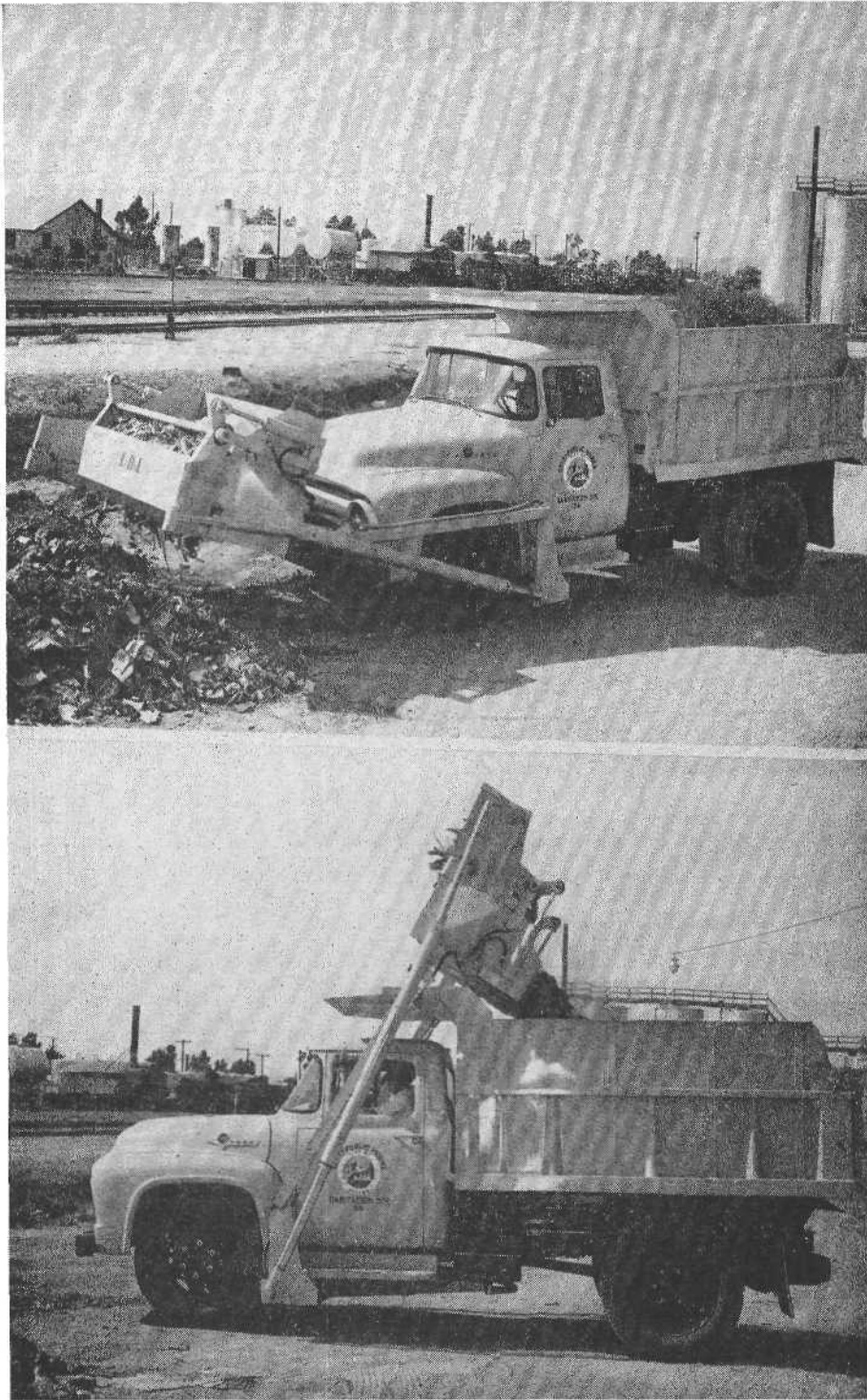


The Litterbug — target of Tucson's combined community effort. This emblem was designed by the National Council of State Garden Clubs and served as the model for a litterbug costume which dramatically keeps the issue before Tucson's citizens.

Six weeks of intensive groundwork preceded the meeting of November 30, 1955, when Mrs. Mabel Weadock, active community leader and long time

Pima County Sheriff Ben McKinney, left, and Undersheriff Waldon Burr, right, discuss with Stop the Litterbug Committee Treasurer Robert Salvatierra the county-wide crackdown on Litterbugs. Photo by Merrille Sutton.





One man operating Tucson's new front-end hydraulic loader can pick up six times more litter in a day than three men and a driver by the old method. Saving to taxpayers is considerable. Photographs by Merrill Sutton.

Litterbug fighter, was appointed temporary chairman. In the next two months, Mrs. Weadock set up a permanent organization and on February 6, 1956, enthusiastic representatives of the city, county and state governments — parks, schools, sanitation, health, highway, law enforcement, University of Arizona — federal agencies, U. S. Forest Service, National Park Service, Federal Bureau of Prisons, U.S. Air

Force — neighborhood associations, women's and garden clubs, conservation groups, YMCA and YWCA, business organizations, a medical clinic, newspapers, civic and service clubs and garbage services — and interested citizens joined the Stop the Litterbug Committee.

Headed by a leading Tucson businessman, Christopher A. Reilly, each organization in the committee has its

own idea on how best to tackle the problem. This has led to a wide diversity of activity, a simultaneous attack on many fronts—education, radio, TV and newspaper publicity; law strengthening and enforcement; sale of litterbags and placement of litter barrels; conference slogans, merchant cooperation, etc.

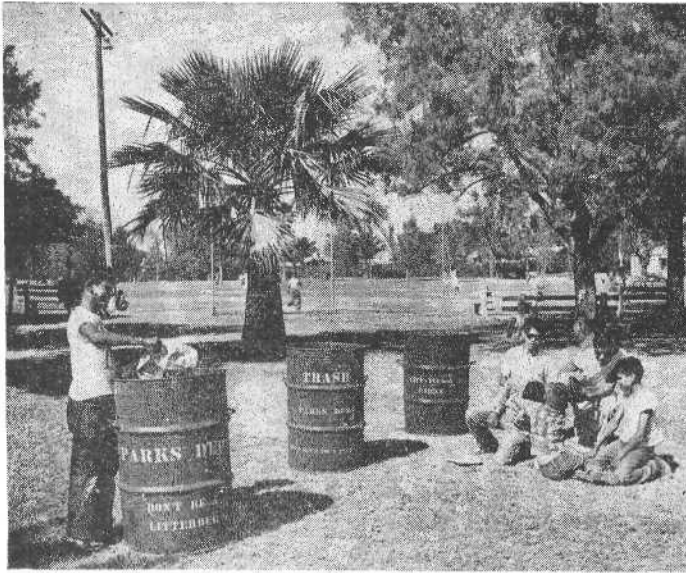
Housewife Mrs. H. B. Parsons conceived the idea of attracting attention to the problem dramatically by creating a Litterbug costume, modelled after the well-known emblem designed by the National Council of State Garden Clubs. Accordingly, Mr. Litterbug has paraded through luncheon clubs, class rooms, government offices, department stores, banks, TV programs—he is liable to turn up anywhere. No group is so exclusive that the symbolic creature cannot gain admittance. Unannounced, it leaves a string of trash in its wake and carries the conscience-pricking question on a card, "Are You A Litterbug, Too?" Mrs. Parsons also was in charge of the city-wide spring anti-litter drive.

Mrs. Imogene Myrland, unassuming grandmother who directs the Tucson Nursery School, supervised a spectacular alley cleanup in 1952. With Burton R. Humphrey, young guidance counselor at the Tucson High School, she is concentrating on the anti-litter education of the city's children. Posters and Litterbug data have been distributed to city and county schools with encouraging results. The U. S. Forest Service film, *Woodland Manners*, told Tucson's young people the story of proper outdoor behavior and set the stage for anti-litter projects.

The 12-acre grounds of the Liberty School were cleaned up by its 350 pupils in a four-day contest. The fifth graders collected the largest pile of debris and were awarded weenies to roast on their bonfire. All were given ice cream in appreciation of their enthusiastic cleanup efforts prior to the dedication ceremonies of the new plant. The habit of picking up litter continues with the children.

A three-grade poster contest highlighted the anti-Litterbug activities spearheaded by the seventh grade at Flowing Wells School. These children made the problem a citizenship study, conducted a school assembly on the subject, arranged with other room teachers for regular litter policing of the grounds, and generally were responsible for making the entire school litter conscious. There is marked improvement in attitude and in the physical appearance of this school.

The children in Davis School made a bulletin board Litterbug out of trash



Trash barrels help keep city parks clean by providing convenient receptacles for trash and timely reminders to park users to aid in the Tucson anti-litter war.



Children are a big force in the litterbug campaign. These Liberty School pupils stand around a pile of brush and litter they picked up. Photographs by Jack Sheaffer.

they collected from their playground. Wrightstown School's pupils schedule regular cleanup of their playground. And the refuse which is blown against the fence is picked up by the "chain gang," playground rule breakers.

Mrs. Weadock ably handles radio announcements and much of the excellent newspaper coverage with bulletins of the current status of the campaign, photographs of the various activities, editorials and related news from other parts of the country.

I have done ghost writing and have been in charge of TV publicity. One hundred eighty 50-gallon oil drums were donated by Davis - Monahan through the U.S. Forest Service. With their lids cut out, a new coat of paint, and a stencilled "Don't Be a Litterbug" these bright orange containers reside prominently on county property in parks and along roads. The county is also installing "Don't Be A Litterbug" signs along the highways.

Mayor Don Hummel and Under-sheriff Waldon Burr warned the public that they mean to enforce the anti-litter laws. In the county, eight citations and 16 written warnings have been given in the past few months. The former, issued for deliberate littering, usually brings forth a protest, "Why did you have to pick on me? Everyone does it!" Written warnings, given where the offense is unintentional—as in the case of hauling garbage to the dump without adequate covering—are usually received with better grace. "I didn't realize the trash was blowing off. I'll put a lid on in the future." Apparently the warnings seem to work because there is less roadside litter along these highways today.

A new amendment passed in early 1956 puts teeth into existing state legislation. Under S.B. 26, not only can a Litterbug be fined \$100, be imprisoned for 30 days and have his driver's license and car registration suspended for 30 days, but the driver or owner of the vehicle from which trash is thrown is legally liable if the Litterbug cannot be determined or is a minor.

Gene D. Reid, superintendent of the

Parks Department, is cracking down on Litterbugs in the city parks and two security officers now are assigned to patrol them. The annual Litterbug cost of \$61,920 in Tucson's parks is appalling!

Murray D. Snyder, Sanitation Supervisor, recently initiated an inspection program to make garbage cans conform to minimum legal standards. Red tags marked "Condemned" and listing the city ordinance and why the cans

Mrs. Imogene Myrland and Mrs. Frederick Knipe illustrate the easy way to make a car litterbag from an ordinary paper bag and a twisted wire coat hanger. Photograph by Merrill Sutton.





A National Park Service trash bag. Its use by thoughtful motorists has improved the roadside appearance of many of our national parks and monuments, reports the Park Service.

do not meet its requirements—"faulty lid, no handles, leaky, etc.—" are attached to damaged cans. On the first checkup, everyone had complied! "A 1000 percent average," reported Snyder. The first truckload of 30 discarded cans was hauled in, replaced by shiny new ones which will not be litter-prone. The campaign to insure the sanitary disposal of family garbage is off to a promising start!

The Sanitary Division has installed 24 Dempster Dumpsters, large 10-cubic-yard portable trash containers on wheels, which have replaced the long rows of garbage cans in some downtown alleys. Periodically, a special truck picks them up and empties them at the sanitary fill. They materially reduce the human and canine garbage can raiding menace. The purchase of 24 more is planned soon.

The driver of a new garbage truck with a front-end loader equipped with a special hydraulic lip picks up debris

in quantity that puts the former three-men-and-a-driver method to shame. The first of its kind in the state, it can pick up 40 to 45,000 pounds a day compared to 7000 to 8000 pounds in the old way. The Dempster Dumpsters and the new garbage truck materially reduce the taxpayers' cost in removing trash from Tucson.

Inspired by a newspaper picture of the two members of the Stop the Litterbug Committee fashioning an automobile litterbag from a paper bag and a coat hanger, the Tucson Medical Center Auxiliary designed a permanent cloth litterbag into which disposable paper bags could be inserted. Stenciled with "Don't Be A Litterbug," the brightly-colored bags were a sellout at the annual bazaar. Mrs. Weadock contacted several leading gas stations and downtown department stores who now sell these bags, produced at the rate of 500 in three months.

Two hundred Y-Teens from all over

the state at their convention in Tucson took home the various anti-Litterbug decorations used at their luncheon, whose theme was "Keep Arizona Beautiful—Keep It Clean." Also on display was the Litterbug diorama from the Arizona Sonora Desert Museum in Tucson Mountain Park.

Merchants also are active in the campaign. The Tucson Merchants Association Bulletin printed an anti-Litterbug message reminding members of the law regarding the littering of alleyways. A laundry put "Takes More than Insecticide to Stop Litterbugs" in its prominent marquee on a main thoroughfare. A soft drink manufacturer placed a series of signs on the Nogales Highway south of town reading "Don't Litter Our Highways." Many individual business establishments put "Help Keep Our Roadsides Clean—Carry A Trash Bag In Your Car" posters in their windows. An important dairy and a leading bank donated their TV advertising time for a week.

But, the job has just begun. The committee is working on Scout and University student cooperation in actual cleanup, on more law enforcement with accompanying publicity, on drive-in movie litter prevention, on further school projects, on automobile decal and bumper banner distribution, on a second cleanup day in the fall and on expansion to a state-wide organization.

Morley Fox believes the Tucson committee has done more in less time than any other city with whose anti-litter activities he is familiar.

Tucsonans want a clean city in which to live, work, raise their families and enjoy life. Surrounded by the unmatched beauty of desert mountains and basking in a superb climate with a rich cultural life, they ask only that the Litterbug habit be reformed. For the unhealthy, ugly, dangerous, expensive and utterly unnecessary filth left by Litterbugs is a menace.

The public is being made aware of the problem and its reaction is favorable. The committee must further acquaint them with and enforce existing laws, provide adequate waste facilities along highways and in gas stations, educate the new and old generations and clean up the debris that already has collected so it will no longer mar the landscape. The Stop the Litterbug Committee will not be satisfied until everyone has, with the children, taken the pledge:

*I will not be a Litterbug
And this is what I mean
I'll use a trash bag in my car
And keep the highways clean.*

Desert Iguana...

This dweller of the low sandy plains of the Lower Sonoran Life Zone of the Southwest is a Northern Crested Lizard (*Dipsosaurus dorsalis dorsalis*) commonly known as the Desert Iguana. First prize winner Jack W. Hagan of Santa Ana, California, photographed this fine specimen near Borrego Springs. These lizards prefer a habitat where sand has accumulated about plants and other objects to form hummocks. In California, Nevada, Utah and Arizona the creosote bush is usually present where these lizards occur. Camera data: 4x5 Speed Graphic; 162 mm. Optar Lens; Super Pan Type B Film; f. 32 at 1/10 second with three photoflood lights.



Pictures of the Month

Shield Dancer...

Second prize in this month's contest was won by Henry P. Chapman of Santa Fe, New Mexico, for his photograph of a young Laguna Pueblo Indian dressed in the costume of a shield dancer. The Laguna was the largest and last settled of the Keresan pueblos. Chapman used a Rolleiflex 2.8-C camera; Plus X film; f. 16 at 1/100 second.

HOME ON THE DESERT

Living Christmas Trees for the Desert Home...

By RUTH REYNOLDS

THE HOLIDAY spirit pervades the home on the desert as it does homes everywhere during December days that march busily along toward the year's most festive season.

While my holiday plans and preparations are in no way unusual, the results of my planning — from Christmas cards to Christmas trees—always reflect the influence of the desert.

I particularly like Christmas cards with a desert motif, not only because I live in and love the desert but because they are so truly suggestive of the land of the nativity—a land not too unlike my own arid and unyielding corner of the world.

So real are these associations that on a starry December night it is easy for my imagination to people the nearby sand-swept trails with Wise Men on camels, the rugged mountain sides with shepherds tending their flocks and the higher peaks with angels singing of peace on earth.

On a Christmas card the desert motif can quite beautifully suggest these Biblical scenes without actually depicting them. It is not that I love the

snow scenes and reindeer less, I choose these desert cards because I am partial to the desert's own peculiar beauty.

Even my Christmas tree this year may be a desert shrub. The one I have in mind will make a small sophisticated "tree," unrelated to the traditional fir or cedar which are for sale in every town in any size desired. They are of course the real Christmas trees—the kind children and parents decorate together and remember always; the kind I shall not forget even as I view the ultimate splendor of my "tree" which I call a desert native. Strictly speaking it is no native and is neither tree nor shrub. It is a weed, a common Tum-bweed of Eurasian ancestry.

Blown by a high wind it may arrive on my front lawn, or it may lodge along a roadside. With thousands of its kind it is to be had for the taking—but with a gloved hand for this plant is a thistle with sharp stickers.

Secure a large, undamaged, symmetrical weed; coat it with white plastic snow or silvery paint—obtainable at drugstores in spray-on containers. Anchor it in a bowl of sand or a vase, hang it with small, bright ornaments

A living Christmas tree will make your desert home more festive during the holidays — and more attractive throughout the year. This month Ruth Reynolds tells about the three conifers that do best in the desert garden.

and you will have something exquisitely decorative if not an honest-to-goodness Christmas tree.

Perhaps farthest removed from the make-believe tree is the live Christmas tree — first choice of many people, especially gardening people always looking for something to plant.

Suitable small — under five feet — live trees may be purchased growing in containers. They retain their fresh greenness indoors and lend themselves beautifully to decorating and, afterward, may be planted outdoors to grow into shrubs or trees adapted to outdoor decorating year after year.

A larger tree—a nice Christmas gift to the garden—is best planted directly in the ground. This the Reynolds family learned by experience. We bought one once — a lovely deodar cedar — shaped almost like a Christmas tree and to us its loosely spaced needles (characteristic of the deodar) did not make it appear too sparsely clothed.

Trees over five feet tall are sold balled in burlap and we set ours, with its hundred pound ball of earth intact, in a tub and packed it with peat moss, as we were instructed to do, so we could moisten it to keep the roots from drying out. We were warned not to use too much water which would make the ball soggy and cause it to fall apart in handling.

We tried our best but the ball of earth did fall apart and the tree died. Ted was partially consoled by the fact that we still had the hole he had dug for it.

For indoor or outdoor living Christmas trees the conifers most frequently sold by Tucson nurserymen are the deodar cedar, the aleppo pine and the Arizona cypress.

The Arizona cypress is a beautiful blue-green tree with short, horizontal branches, usually forming a narrow pyramidal head. The deodar cedar has good form, is softer and lighter

Lighting the aleppo pines along Christmas Tree Lane in Tucson is an annual neighborhood project.



textured than most other conifers and as a living Christmas tree is second only to the aleppo pine which seems to take precedence over all other trees sold as such.

The aleppo's popularity stems not so much from its Christmas tree characteristics as from its tolerance of the alkaline soil and the aridity for which it is destined in the desert. It is the easiest to grow of them all, although the cypress and deodar also do well and mature into large trees—an eventuality which shoppers would do well to bear in mind.

The deodar may become a 60-foot giant with a spread of 30 feet at the foliage base. A height of 40 feet is average for the Arizona cypress. The aleppo pine ranges between these two in height and is less wide-spreading.

Obviously trees with so much growth expectancy are not ideal for planting in front of the house. At the side of the house—with room to grow—or in the back patio they serve as outdoor Christmas trees for many years and enhance the premises as splendid, stately trees.

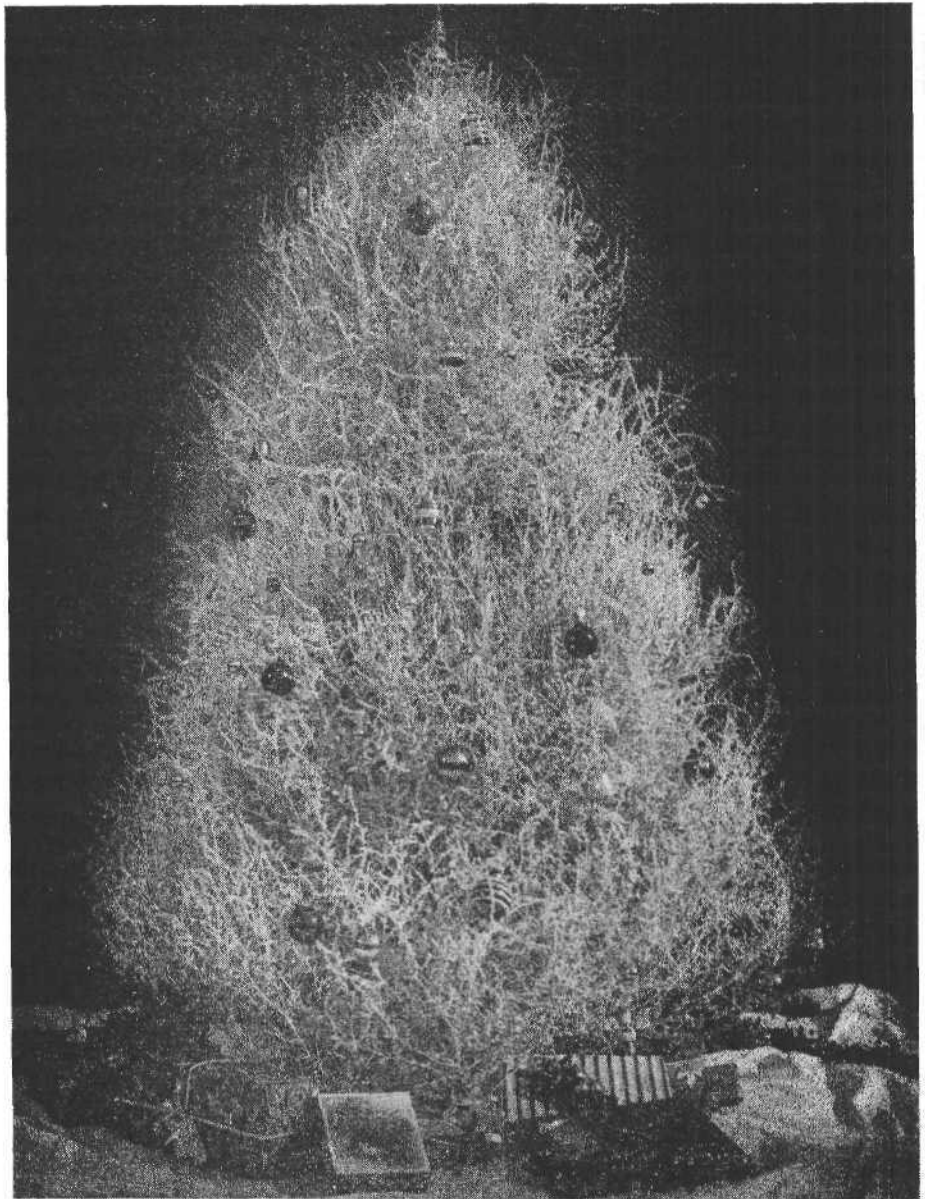
My theory of relegating them to the back or side areas is basically right, I am sure, until I see young aleppo pines lighted up in front of many homes. Sometimes too the conifers seem so delightfully evergreen that they look all right to me wherever they are.

In one Tucson subdivision known as Winterhaven, aleppo pines have been used for street planting along the pleasant, curving street called Christmas Tree Lane. And while nothing could give any part of a desert town a pronounced wintry character, the pines do lend atmosphere to the scene and, strung lavishly with colored lights during the holidays, set the theme for the Christmas Fairyland created there each year.

So spectacular has this annual display become that its fame is fast spreading beyond Winterhaven, beyond the town and beyond the state.

The man behind it all is C. B. Richards, who eight years ago developed the subdivision—laying off and paving the curved streets—planting the streetsides and small plazas with grass and landscaping them with conifers, largely aleppo pines and arborvitae. And of course building attractive contemporary homes in the medium price range.

From that point on the Christmas Fairyland developed through cooperation, beginning with a cooperatively owned water company which pays all expenses. With each property owner a stockholder in the company this arrangement works to the satisfaction of



To the enchanted eyes of tiny tots, this frosty tumbleweed tree is a glittering fairyland miracle. To the adult it represents originality, and the satisfaction that comes of creating beauty from Nature's bounty. To make, fasten a three-fourths inch dowel of desired length on a wood base. Thrust tumbleweeds in graduated size over the pole to form tree. Spray white with thinned paint. Add glitter with silver tinsel and Christmas tree ornaments. Tree created and photographed by Valrie M. Geier, Northridge, California.

all. And with each tree requiring about fifteen strings of lights, the cost, I surmise, is not negligible and will become less so, with all trees requiring additional lights each year. The aleppo pines that in 1949 were about 15 feet tall already are 15 to 20 feet taller.

All homes are decorated but this is an individual family project. The decorations range from elaborate to very elaborate—from roof top Santas to nativity scenes floodlighted on lawns.

All shrubs about the houses seem to have been planned and planted specifically for decorating with colored lights. This seemed so to me until I went back by daylight and found them not particularly unusual.

While coniferous evergreens are used generously in Winterhaven, I found that many of our standard shrubs—pyracantha, pittasporum, Texas Ranger, even creosote—could be set beautifully aglow with colored lights or masquerade as Christmas trees.

Among coniferous shrubs the arborvitae predominates. But the arborvitae is not always a shrub—sometimes it is a tree and a nice one but not to be confused with the shrub varieties of which there are many. They have scale-like leaves carried edgewise which, according to variety, vary in color from golden to deep green, and in shape from pyramidal to columnar and rounded. Their size ranges from a

foot-high dwarf to one of almost any desired height.

In Winterhaven a large variety has been used for street planting, the smaller varieties for foundation and other landscaping purposes.

Juniper is gaining popularity there

and elsewhere. Among the many varieties the Tamarix and the Pfitzer are the most widely used. The Tamarix only grows about 18 inches high but spreads to 10 feet across. The Pfitzers spread a little wider and grow higher—about five feet. They are very informal, with long very green plume-

like branches. Gardeners by the thousands have succumbed to their charm during recent years.

Another year and the three little Pfitzers out in front of the Reynolds home will be large enough to support some colored lights at Christmas time—maybe.

LETTERS

Navy Landgrab Scored . . .

Vya, Nevada

Desert:

I represent all of Northern Washoe County in the Nevada State Legislature. My Assembly district begins at the city limits of Sparks and runs north to the Oregon line—a distance of over 200 miles.

In the name of a lot of people who feel outraged at the Navy's highhanded landgrab attempt in this area, I wish to thank Nell Murbarger and *Desert Magazine* for the fine article in the October issue on this subject.

My fellow legislators at the last Special Session of the Legislature voted overwhelmingly in favor of my resolution condemning the Navy grab.

State Senator Bill Frank of Tonopah recently told me that there has not been a plane on the huge 4,000,000 acre Air Force bombing range there for over a year, and possibly two.

DON CRAWFORD

Cow Skull Wanted . . .

Pomona, California

Desert:

Will you please ask your readers where I can obtain a bleached cow skull for my cactus garden? I am not acquainted with anyone who raises cattle and have never found a skull on any of my desert outings.

MRS. JAY FREESE
932 Prock St.

Let the Sun In . . .

Tombstone, Arizona

Desert:

Why pick on Harry Oliver for wearing shorts? This wonderful desert sunshine—full of ultra-violet rays and other elements so necessary to good health and happiness—cannot be enjoyed in any way except by allowing it free access to the skin.

I pity those poor delicate souls who shut off these beneficial rays with a lot of heavy clothing. My everyday wear consists of a pair of shorts and canvas oxfords—and that's it!

S. A. MAULDIN

New Writers' Market . . .

Gallup, New Mexico

Desert:

Because it has become increasingly risky to have assigned articles exclusively in the annual Inter-Tribal Indian Ceremonial Magazine, since sometimes commitments are not honored, leaving me in trouble at the last minute, I would like to invite manuscripts from the circle of writers who contribute to *Desert* on Indian life and crafts ranging from 1000 to 5000 words. Payment will be made on acceptance probably at the rate of one and one-half cents a word.

EDWARD S. MERRY
Secretary-Manager

Trailers Banned at Spa . . .

Anaheim, California

Desert:

Miriam Anderson's story on Hot Mineral Spa in the November *Desert* is rather outdated.

We have been taking our trailer down to that delightful place for the past nine years. However, I understand that this winter only day parking will be allowed at the spa and trailer parking and camping is to be prohibited. It's like losing an old friend, but perhaps someday we again will be able to go there for our vacations.

B. LOVALETTE

According to our information, the Hot Mineral Spa is restricted only temporarily while improvements are being made.—R.H.

Rainbow Bridge Threatened? . . .

Phoenix, Arizona

Desert:

Comes now the report that the new Glen Canyon Dam is to be 700 feet high instead of the 500 feet originally reported. This will put Rainbow bridge just about under water.

The new Bench Mark, at the Eastern foot of the Bridge, shows an elevation of 3732 feet. Mark at the dam site shows 3135 feet. The top of the Bridge is 3968 feet. So—there will be only 133 feet of the bridge above water.

I would like to see a campaign waged to build a protective dam in Bridge Canyon to save the Bridge.

M. G. NELSON

More on McKellipses . . .

Lone Pine, California

Desert:

Reference is made to the letter from E. L. Wilson in the October *Desert* in which he asks about the two graves on Highway 190 east of Lone Pine.

The story of these little graves was told to me by a highway worker. The parents of these little boys left Bishop with one child dead and the other near death. They were on their way to Darwin, but got only as far as the spot on Highway 190 where the graves are located when the second child died.

The graves are kept by relatives living in Bishop. When Highway 190 was surveyed prior to construction, it was found that it would run right through the graves. However, the state made a slight change in the road plans to save the graves and also erected the white cross that marks them.

MRS. N. H. MEYERS

Memories of Old Joe Goode . . .

San Bernardino, California

Desert:

Walter Ford's October waterhole story on Good Springs, Nevada, carried my memory back to the early '90s when I roamed over that country, stopping temporarily at Vanderbilt, California, Sandy, Nevada, and at the Keystone Mine on the mountain above Sandy.

When Oliver James Fisk, whom I have known a long time, told Mr. Ford that Good Springs was named after a prospector by that name he was quite correct, but old Joe Goode spelled his surname with a final "e"—he told me so himself.

I remember him in his blue flannel shirt, double-breasted with two rows of big white buttons the size of half dollars down the front. Those shirts seem to have disappeared long ago.

He and I were just casual acquaintances. The disparity in our ages was too great to permit a closer association for at the time he was an old desert campaigner while I was a mere neophyte—but I have never forgotten him.

CHARLES BATTYE

Here and There on the Desert . . .

ARIZONA

Health Service Trains Indians . . .

PHOENIX—Indians from 10 states recently completed a six-week training school course for sanitarians under the direction of the U. S. Public Health Service. The 20 men and women studied water supplies, waste disposal, insect control and modes of disease transmission. Extensive use of Indian personnel is being made to bring a better understanding among their people of the importance of sanitation in preventing disease, reported Dr. L. J. Lull, area medical officer in charge.—*Phoenix Gazette*

. . .

Moisture Problem Studied . . .

TUCSON—The Institution of Atmospheric Physics at the University of Arizona is conducting studies into the state's moisture problem. Studies are being made to determine how moisture gets to Arizona, and how and why it varies from one year to the next. Studies also are being made to determine why the moisture should vary from one week to the next within any one season. These studies have sprung directly from former findings that the total amount of water vapor lying in the atmosphere 10,000 feet over eastern Arizona and western New Mexico is greater in the summer months than in any other portion of the United States at that season.—*Casa Grande Dispatch*

. . .

Brush Fires Advocated . . .

PRESCOTT—University of Arizona Professor Dr. Robert Humphrey again has advocated brush burning as a method of improving range grasses. He declared that large fires have been a benefit to the range for thousands of years. They held down the amount of woody brush, which he said now covers more than half of Arizona's 72,000,000 acres. Lightning-caused and Indian-set range fires have prevailed "since time immemorial," he said. "Fires often swept the country every year. It is small wonder that grassland was so extensive and accompanying shrubs were so scarce." Grasses are well adapted by their growing habits to withstand fires, but shrubs are not, Humphrey pointed out. With the white man's proficiency at stopping fires, the shrubs have increased and crowded out the grasses, he said.—*Phoenix Gazette*

Organ Pipe Program Told . . .

ORGAN PIPE NATIONAL MONUMENT—National Park Service officials outlined the planned improvements during the next 10 years at Organ Pipe Cactus National Monument. An estimated \$2,927,000 will be spent at Organ Pipe of which \$1,104,000 is proposed for roads and trails and \$1,823,000 for buildings and utilities. These improvements include a visitor center at headquarters to house information-orientation facilities, museum exhibits and offices; wayside exhibits and self-guiding loop drives; expansion of campground facilities and picnic areas and of roads to serve them; new scenic loop roads in the vicinity of Puerto Blanco and the Ajo Mountains, and new trails for interpretive uses and access to points of interest; utility and other buildings to meet maintenance and protection needs and utility systems.—*Ajo Copper News*

Worst Drouth in 22 Years . . .

PHOENIX — All of Arizona was declared a drouth disaster area by the Federal Government as state ranchers reported their ranges in the worst shape in 22 years. Record low runoffs again were reported in September, further reducing the amount of water stored in state reservoirs. The severe drouth has prevented the Salt River Valley Water Users Association from fixing the water allocation for the coming year.

. . .

Accretion Land Suit Settled . . .

CIBOLA VALLEY—The Arizona Game and Fish Department won another round in its fight to develop for wildlife and public recreation disputed lands in the Cibola Valley. The courts decided in favor of the game department in its suit against six Arizonans who were charged with forcible entry on 1500 acres of accretion land. The disputed land was cleared of vegetation in areas which the department had ordered left in their natural state as wildlife habitat.—*Yuma Sun*

Cash for Desert Photographs . . .

If Santa Claus favors you with a camera or some new photographic equipment this Christmas, why not resolve right now to become a regular contributor to the Picture-of-the-Month contest?

Winter's invigorating sun-filled days call out the most interesting of all desert denizens—people—and you will find an endless number of possible photographic subjects when members of your family, friends or strangers re-discover the charm of the vast desert land.

Two cash prizes are given to winners each month, and the contest is open to both amateurs and professionals.

Entries for the December contest must be sent to the Desert Magazine office, Palm Desert, California, and postmarked not later than December 18. Winning prints will appear in the February issue. Pictures which arrive too late for one contest are held over for the next month. First prize is \$10; second prize \$5. For non-winning pictures accepted for publication \$3 each will be paid.

HERE ARE THE RULES

- 1—Prints for monthly contests must be black and white, 5x7 or larger, printed on glossy paper.
- 2—Each photograph submitted should be fully labeled as to subject, time and place. Also technical data: camera, shutter speed, hour of day, etc.
- 3—PRINTS WILL BE RETURNED WHEN RETURN POSTAGE IS ENCLOSED.
- 4—All entries must be in the Desert Magazine office by the 20th of the contest month.
- 5—Contests are open to both amateur and professional photographers. Desert Magazine requires first publication rights only of prize winning pictures.
- 6—Time and place of photograph are immaterial, except that it must be from the desert Southwest.
- 7—Judges will be selected from Desert's editorial staff, and awards will be made immediately after the close of the contest each month.

Address All Entries to Photo Editor

The Desert Magazine

PALM DESERT, CALIFORNIA

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BOOKS—MAGAZINES

INTERESTED IN Nevada? A new miniature album just printed contains 10 fine Kodachromes of historic mining towns around Nevada, with brief descriptions and locations. "Historic Highlights of Nevada" available now for just 25c in coin or money order to: E. W. Darrach, P. O. Box 606, Winnemucca, Nevada.

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MISCELLANEOUS

JOIN A REAL Prospectors and Rockhounds organization. Amateurs welcome. Many benefits for members. Membership \$2.50 year, includes publication "Panning Gold." United Prospectors, 701½ East Edgeware, Los Angeles, California.

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SECTIONIZED COUNTY maps — San Bernardino \$1; Riverside \$1; Imperial 50c; San Diego 50c; Inyo 75c; other California counties \$1.25 each. Nevada counties \$1 each. Topographic maps of all mapped areas. Westwide Maps Co., 114 W. Third St., Los Angeles, California.

EARLY GOLD Rush Map \$1.00. P. O. Box 1679, Indio, California.

CALIFORNIA

Oldest Living Trees Found . . .

WHITE MOUNTAINS — Ancient pines, more than 4000 years old, have been found growing in the upper timberline of the White Mountains in eastern California by Dr. Edward Schulman of the University of Arizona Laboratory of Tree-Ring Research, and his assistant, C. W. Ferguson, Jr. The trees are the world's oldest known living things, and exceed the age of the oldest dated Giant Sequoias of California by about 1000 years. Bristlecone pines in the 2000-3000 year range were found and sampled in the Panamint Mountains and also in Nevada. Several trees well over 1000 years old but under 2000 were found in southern Utah and northern Arizona. While bristlecone pines attained the greatest age, limber pines, another high altitude species, are able to attain ages of around 2000 years, Dr. Schulman reported.

New Bridge for Gas Line . . .

NEEDLES — Construction has started on a 1080-foot suspension bridge across the Colorado River for the Pacific Gas and Electric Company's natural gas line. The \$350,000 project

is expected to increase the company's daily importation of natural gas to more than one billion cubic feet. — *Barstow Printer-Review*

Industry Campaign Underway . . .

PALMDALE — An intensive advertising promotion campaign aimed at attracting industry to the southwestern corner of the Mojave Desert was launched by the Antelope Valley Publicity Association. Goals of the campaign include attracting a million new residents to Antelope Valley, 1000 new retail stores and 100 new manufacturing and commercial businesses by 1965. — *Valley Press*

Highway Rerouting Scored . . .

NEEDLES — The Needles City Council passed a resolution opposing a proposition of the Federal Government which would force the construction of Highway 66 some 12 miles north of Needles. The Bureau of Public Roads proposes to bypass Needles entirely and run the new freeway in a straight line from Topock to Amboy, thus saving 12.4 miles. State Senator James Cunningham reported that he has received 1000 letters from Needles residents asking him to take action to keep the highway out of the city. He added, however, that they did not mean to take it as far out as the Federal routing proposal called for. — *Desert Star*

Salton Sea Stabilizing . . .

COACHELLA — The Salton Sea which has been rising ever since 1921 may be nearly stabilized. The sea, which was rising rapidly only three years ago, is now only one-third of an inch higher than it was last year at the same time. Engineers hope that evaporation is just about equal now to the amount of water draining into the sea from the Coachella and Imperial valleys and Baja California so that its destructive rise will end. — *Riverside Enterprise*

Amphitheater for Borrego Park . . .

BORREGO SPRINGS — An outdoor amphitheater to seat approximately 250 persons and a herbarium museum exhibiting desert plants found on the Anza and Borrego deserts will be built at Borrego State Park headquarters. Dalton E. Merkel, naturalist at the park, said the additions are part of an expanded program to acquaint visitors with the natural history of Borrego. As soon as the amphitheater is completed, Nature programs will be conducted regularly, Merkel said. In the meantime naturalists will conduct Nature hikes daily and campfire programs five nights a week. — *Borrego Sun*

Monoville Monument Sought . . .

BISHOP — The last traces of the short-lived gold camp of Monoville on the eastern slope of the Sierra Nevada are fast disappearing from the face of the earth, but before they are completely gone a historical marker should be placed at the site of the pioneer settlement, suggests Dorothy C. Cragen in the *Inyo Register*. The first sizeable strike in the area was made July 4, 1859, and soon thereafter 2000 to 3000 persons were living and working in Monoville. The town lasted only a few years, however, and when the ledges became lean the inhabitants moved on to newer and better discoveries.

Rest Stops for Desert . . .

BARSTOW—Given first priority in the preliminary list of proposed new statewide roadside rests is a section of highway in San Bernardino County from Barstow to the Arizona line along Highways 466 and 66. Facilities in this program will involve some land acquisition, clearing, grading and planting, roads and parking, tables, refuse containers, comfort stations, water, signs and fencing, and shade ramadas as needed.—*Printer-Review*

New Water Well Regulation . . .

LOS ANGELES — Water users in Los Angeles, Riverside, San Bernardino, Ventura and Santa Barbara counties who pump any of their water are subject to a new state law passed by the last legislature. This law will require annual reports on amount of water pumped or diverted. It is essentially a means of bringing together more accurate information for better planning and development of the water resources in the counties.—*Antelope Valley Press*

Mojave Base Rehabilitated . . .

MOJAVE—The interim rehabilitation program ordered by the Department of Defense in January, 1955, for the Marine Corps Auxiliary Air Station at Mojave has been completed. Contracts for the restoration work

totalled approximately \$1,500,000. Another \$10,500,000 was authorized and funded by the last Congress for the construction of new, permanent buildings to be started in mid-1957.—*Lancaster Ledger-Gazette*

NEVADA

Man-Made Glaciers Proposed . . .

RENO—Water conservation in the Sierra Nevada by man-made glaciers is being studied by U. S. Forest Service experts. Emmitt M. Tuckford of Medford, Oregon, a student of snow and ice problems, proposed the idea. The Tuckford plan calls for the spraying of jets of water during the freezing season into deep and shaded canyons or gulches which receive a minimum of sunshine. It would be necessary to have a gravity water supply at the edge or mouth of these canyons, he pointed out. The sprayed water would form layers of ice and at the end of winter the canyon would be loaded with thousands of tons of ice expected to melt slowly during the summer. Besides the low cost of storing water in this manner, advocates of the plan suggest the bodies of ice might become self-sustaining.—*Nevada State Journal*

City Gets Water Line . . .

MANHATTAN—The townspeople of Manhattan, forced to haul water in tubs and buckets during recent years and not even having the advantage of the old water wagon used in 1905, recently celebrated the completion of a new pipe line which brings water directly to their homes. The community was without a water line for eight years.—*Tonopah Times-Bonanza*

Railway Fetes 50th Year . . .

McGILL—The last remaining short-line railroad in the state, the Nevada Northern Railway Company, celebrated its 50th anniversary in late

September by giving free rides and prizes to every child in White Pine County who attended the festivities. Pulling the special train was a 1910 Baldwin passenger locomotive. The railway operates between Ruth and Cobre.—*Eureka Sentinel*

Research Project Disclosed . . .

SILVER SPRINGS—Curtiss-Wright Corporation is planning a major outdoor research testing center in Western Nevada on a 320 square mile site that it recently acquired. The company said it will test the latest aeronautical advancements in the region. The test center is expected to cost between \$300,000 and \$400,000. — *Nevada State Journal*

Resort Plans Announced . . .

WESTWOOD—New owners of the once-thriving lumber town of Westwood intend to develop that community as a resort, it was reported. David Weisz and Milton J. Wershow purchased the community from the Fruit Growers Supply Co. Westwood is centered in a hunting and fishing area of mountain parks and lakes and is on the through route of the Western Pacific and Southern Pacific railroads.—*Nevada State Journal*

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Industrial Plans Announced . . .

LAS VEGAS — Formulation of plans for a large-scale, state-sponsored industrial development in El Dorado Valley in southern Nevada were underway following a meeting of civic and state leaders. Necessary bills for submission to the 1957 legislature authorizing state purchase of the federally-owned 197-square-mile valley and to provide for expenditure of state money to bring in Lake Mead water to the area were being drafted. The state would be repaid as industrial firms and subdividers purchased the property for development. The state predicted between 40,000 and 50,000 persons would live in the valley to man industrial plants expected to locate there.—*Nevada State Journal*

Dam Work Set for April . . .

CALIENTE—Access roads will be built to the Pine and Mathews canyons dam sites next April as the first step in the construction of the two big Lincoln County flood control projects. A contract for the \$2,342,000 dams is expected to be let in February. Barring unforeseen delays, the dams should be completed by December 31, 1957.—*Caliente Herald*

NEW MEXICO

Navajo Enrollment Increases . . .

SANTA FE—School enrollment has almost doubled in the past four years among Navajo Indian children both on and off their reservation in Arizona, New Mexico and Utah. For the 1955-56 school year, records of the Indian Bureau show that 24,163 of the 29,519 Navajo school age children (6 to 18 years) were attending classes. Along with them were another 1124 youths of more than 18 years of age, bringing the total Navajo enrollment to 25,287.—*Phoenix Gazette*

Old Timer Defies Military . . .

OROGRADE — An 82-year-old New Mexican, John Prather, says he intends to spend the rest of his life at his home just inside a guided missile range—no matter what the military thinks or does about it. "It's not right to take a man's home from him," says the tough old pioneer, "I'll kill the first man who tries to move me. And I'll die at home." Prather has steadily refused since 1951 to sell his land to the expanding Ft. Bliss firing range. The government repeatedly has extended the time for Prather to move off, Federal officers have served papers on him ordering him off, money offers far above what the government believes is the value of the land have been made — but Prather refuses to budge.—*Los Angeles Times*

SANTA FE—Dr. Frederick Webb Hodge, 91, one of the world's leading scientists, an authority on the American Indian and long-time director of the Southwest Museum in Los Angeles, died on September 28 in Santa Fe.

Dr. Hodge formally retired as the museum's director last January after a year's sabbatical leave. During that time he made his home in Santa Fe where he had gone to work on a number of special projects, including a study of the Apache Indians. — *Los Angeles Times*

Indian Population Gains . . .

SANTA FE—The U. S. Indian Bureau has 450,000 Indians under its jurisdiction today compared to only 200,000 in 1900, Commissioner Glenn E. Emmons announced. "The nation's Indians are increasing at a fast rate despite a high death rate. The population has outgrown the land resources, which has created quite a problem," he said. This is one reason behind a three-point program set up by the bureau under Emmons to encourage integration of Indians in outside communities and eventually end the government's trusteeship of Indian lands. He said the program is designed to promote better health, adequate education and economic and social development of the Indians. — *Phoenix Gazette*

Mission Area Excavated . . .

MOUNTAINAIR — The Campo Santo area of the first Spanish Mission in the Gran Quivira National Monument region is being excavated. The work is taking place east of the San Isidro Mission which was constructed in 1629 by Father Letrado.—*Sandoval Journal*

FREE! GUNFIGHTERS BOOK!

A GALLERY OF WESTERN BADMEN is a book of factual accounts on the lives and deaths of 21 notorious gun-slingers of the Old West such as Wyatt Earp, Billy the Kid, Wes Hardin, John Ringo, Jesse James, Bill Longley, Doc Holliday, Wild Bill Hickok, Clay Allison, Ben Thompson and 11 others! There are 26 authentic photographs!

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THE *Desert* MAGAZINE
PALM DESERT, CALIFORNIA

TRUE OR FALSE ANSWERS

Questions are on page 14

- 1—False. Coyotes are omnivorous animals.
- 2—False. Petrified wood is created by the infiltration of water carrying minerals in solution.
- 3—True.
- 4—False. Geronimo died on the government reservation at Fort Sill, Oklahoma, February 17, 1909.
- 5—True. 6—True. 7—True.
- 8—True.
- 9—False. The capital of Nevada is at Carson City.
- 10—True.
- 11—False. Bill Williams was a Mountain Man.
- 12—False. Rainbow Bridge is one of Nature's masterpieces.
- 13—True. 14—True.
- 15—False. Carlsbad Caverns were discovered by Jim White in 1901.
- 16—False. The home of the Cocopahs was in the Colorado River delta.
- 17—False. There is great variation in the pattern of the rattlers' markings—not always diamond in shape.
- 18—False. Hell's Half Mile is in the Green River.
- 19—True.
- 20—False. The roadrunner can make short flights.

UTAH

Porcupine Controls Asked . . .

VERNAL—Control of the tree-destroying porcupine was asked by the Forest Service. "Hunters and other recreationists will be doing the trees a big favor by destroying every porcupine they see," Forest Supervisor Gil Doll said. "The Forest Service recognizes that even though porcupines are a natural part of the forest habitat, too many of them can do serious damage to timber, especially to young plants." —*Vernal Express*

LDS Tells Monument Plans . . .

SALT LAKE CITY—Plans for a new heroic-sized monument on Temple Square were announced by the Church of Jesus Christ of Latter-day Saints. The monument will commemorate the restoration of the Aaronic Priesthood of Joseph Smith, Jr., prophet-founder of the LDS Church, and Oliver Cowdery by John the Baptist. The central figure on the bronze monument, John the Baptist, will be 10 feet tall and the entire monument, including the base, will be 14 feet high. —*Salt Lake Tribune*

Bryce Visitor Record Broken . . .

BRYCE CANYON—An unusually warm September was credited with boosting Bryce Canyon National Park's visitor totals for that month to an all time high. The number of vehicles entering the Park during the month was 10,585, an increase of eight percent over the 9769 vehicles which entered in September, 1955. Visitors entering the park were 35,482 as compared to 33,485 of September, 1955, or an increase of six percent.

Recreation Potential Great . . .

DENVER, COLORADO—Opportunities for recreation and wildlife development in the Upper Colorado River Storage Program were hailed by R. B. McKennan, assistant regional forester of the U. S. Forest Service at Denver. He said he was certain that the Forest Service "will be ready and willing to cooperate in all ways possible in recognizing, planning and accomplishing the most from those opportunities." —*Salt Lake Tribune*

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Indians Ask Law Repeal . . .

SALT LAKE CITY—The National Congress of American Indians has called for the immediate repeal of House Concurrent Resolution 108 (83rd Congress) which calls for the removing from Federal supervision of certain tribes. The Indians said they opposed the resolution because it is a flagrant example of an attempt to solve complex social, economic, cultural and legal problems by merely legalistic means. The Indian Congress suggested that a plan be developed by the government for each reservation or colony of Indians in the United States and Alaska. —*Salt Lake Tribune*

Dinosaur Quarry Closed . . .

VERNAL — The fossil dinosaur quarry will be closed to visitors while construction of the road, parking area and visitor center to house the in-place exhibit of fossil dinosaurs are under construction at Dinosaur National Monument. Visitors will be allowed to visit the quarry on Sundays or other times when construction is suspended, Superintendent Jess H. Lombard announced. As an alternate display of in-place fossil dinosaur bones, improvement of the "Dinosaur Ledge," an extending outcrop of the same formation containing the fossil bone material in the quarry, is underway.

INDIAN OIL LEASE INCOME SOARS TO NEW RECORD HIGH

Income received by Indian tribes and individual Indians from oil and gas leasing of their lands reached the record total of more than \$41,000,000 in the fiscal year that ended June 30, the Department of Interior reported.

This compares with an income of about \$28,000,000 in 1955 and approximately \$13,000,000 in 1951.

Nearly \$36,000,000 of the 1956 total was accounted for by 10 tribal groups. The great majority of tribes, as usual, received little or no oil and gas income.

Three factors are chiefly responsible

for the 1956 upsurge: (1) the intense renewal of interest in leasing on the Osage Reservation in Oklahoma; (2) the stepped-up search for oil and gas on Navajo lands in the Four Corners area; and (3) the potential expansion of gas development on Indian lands in the San Juan Basin of the Southwest.

In addition to the Navajo and Osage tribes, the other eight groups receiving substantial oil and gas income in 1956 included those on the Jicarilla Reservation, New Mexico; the Ute Mountain and Southern Ute Reservations, Colorado; the Fort Peck, Blackfeet and Crow Reservations, Montana; the Wind River Reservation, Wyoming; and the Uintah-Ouray Reservation, Utah.

Income received by Indians from other minerals in fiscal 1956 amounted to nearly \$2,900,000. Much of this was a result of interest in uranium leasing on the Navajo Reservation and the Spokane Reservation of Washington.

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MINES and MINING

World's Largest Iron Ore Deposit Reported Discovered in Arizona

Omega Mines, Inc., announced production will start immediately on what is reportedly the largest alluvial deposit of high grade iron ore in the world, recently discovered in the Black Hills of Arizona, 45 miles northeast of Tucson.

Development of the deposit, encompassing more than 40,000 acres, could revolutionize the entire steel industry in Western United States and the Orient, Omega officials said. A \$60,000,000 contract to ship the ore to Japan is now under consideration.

A record 200,000,000 tons of iron ore already have been blocked out and certified, and blocking operations are being continued at a rate of a million tons per week. Tests of iron ore from the mine made by several of the country's leading laboratories and engineering firms certified the iron content at a phenomenal 60 to 80 percent. Mining engineers' reports indicate on the basis of present finding, the Black Hills discovery may turn out to be the largest source of high grade iron ore in the world.

Operators of the mine plan to use a dry magnetic separation process to mine the

ore. They point out that because the Omega ore is alluvial and magnetic, it can be mined by open pit. Plans call for a production of 150,000 tons per month for the first year.—*Pioche Record*

Gold Hill, Utah . . .

Bueno Mining Co. has completed a purchase agreement of a lead-silver property near Gold Hill, Utah. Surface assays of exposed lead and silver average from \$135 to \$250 per ton. The company plans the construction of a 100-ton mill to process lower grade ores.—*Pioche Record*

Humboldt Range, Nevada . . .

Operation of a 25 ton flotation mill at the old DeSoto gold, silver, lead and zinc mine in Star Canyon of the Humboldt Range was started this fall. Crushing is done with a jaw crusher and the fine grinding by a ball mill. The mill also has a zinc separator. The mine originally was worked by Cornishmen in 1860 who were interested only in high grade ores. As a result, besides having substantial ore reserves of millable quality, there is a large tonnage of waste on the dump that is subject to milling with the new equipment now in operation.—*Nevada State Journal*

Washington, D. C. . . .

The government announced regulations to govern purchase of domestic columbium-tantalum bearing ores and concentrates. The General Service Administration said it would purchase a maximum of 250,000 pounds of pentoxide. The program will end when the amount has been purchased, or on December 31, 1958, whichever occurs first.—*Salt Lake Tribune*

Goldfield, Nevada . . .

Work is progressing on the preliminary preparations to mine and mill cinnabar deposits in the Goldfield area. The Monarch Milling and Mining Company reported that it hopes to put 125 tons of cinnabar through the mill a day when operations begin. The ore will come from a mine at Ralston and one at Lone. — *Nevada State Journal*

Pershing County, Nevada . . .

Erection of a 100-ton flotation mill to handle mercury ores of eastern Pershing County is planned by Metals Exploration Co. The company's original intention was to install a Gould furnace, but tests of ores from various properties now controlled by the company showed too low a recovery. Also being considered by the company are mills for fluorspar and tungsten properties; and a shorter road from Cow Creek to Sulphur over which to truck perlite.—*Love-lock Review-Miner*

Towaoc, Colorado . . .

Lease of Ute Mountain oil and gas property at Towaoc brought a record cash total of \$7,607,000 and a record price per acre of \$143.22. In all, 21 tracts of land comprising 53,120 acres of Ute Mountain land in San Juan County, New Mexico, and Montezuma County, Colorado, were leased.—*Dove Creek Press*

Lovelock, Nevada . . .

John Cooney and son announced that they are going ahead with plans to mine and mill the rich scheelite ore in their Seven Troughs Range mine, despite uncertainties of whether they are in or out of the proposed Navy gunnery range extension.—*Pioche Record*

Battle Mountain, Nevada . . .

Discovery of a large vein of high grade silver ore in the old Betty O'Neal mine, 13 miles south of Battle Mountain, was announced by the Red Rose Mining Company. The ore assayed at 555 ounces to the ton and at current prices would yield \$550 per ton.—*Battle Mountain Scout*

Vernal, Utah . . .

The old Dyer mine north of Vernal saw its first activity since 1906 when a Denver company commenced exploration there. Tacony Uranium Corporation of Denver will concentrate on iron ore and copper development, but traces of uranium may show up, the company said.—*Vernal Express*

San Juan County, Utah . . .

Intermountain Petro-Mining Ltd. proposes to expend \$100,000 in initial development of the copper potential of Lisbon Fault (Big Indian District) claims of Big Indian Uranium Corporation in San Juan County. These properties have long been known as copper-bearing, but efforts in the past to mine them commercially have failed. The firm hopes to reduce costs by using open pit mining operations. — *Salt Lake Tribune*

Rifle, Colorado . . .

Union Oil Company of California was expected to reach an answer next year on whether extraction of oil from Rifle, Colorado, shales is profitable. The present multi-million dollar mining and retort operation on Mahogany Ledge is part commercial and part research, the company said.—*Salt Lake Tribune*

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URANIUM NEWS

Uranium Studied as Salt Water Conversion Agent

Now in the planning stage is a new type atomic reactor costing between \$600,000,000 and \$800,000,000 for conversion of salty seawater to fresh water, announced Senator Clinton P. Anderson, chairman of the Joint Congressional Committee on Atomic Energy.

Such a reactor, he said, "would produce one billion gallons of fresh water every day or a total of one million acre feet of water annually."

The senator said it is essential that new uses be found—and quickly—for the growing domestic pile of fissionable materials.

He said only the Federal government can afford the salt water experiment because of the high cost and because "a successful turn out of this experiment would automatically solve water problems for the interior areas of America, which now battle California for every drop of water which it contemplates using in the future."

"Think what a relief it would be if the people in Arizona, Nevada and the Upper Basin states along the Colorado River could be told that Los Angeles is no longer a competitor for the water of that stream and that they, already facing serious troubles because of drouth, can use this water to supply their needs since Los Angeles has found a new source which is both abundant and eternal," the New Mexican said. — Robert Bernick in the *Salt Lake Tribune*

More Major Oil Companies Investing in U-Ore Search

The discovery that the search for uranium can be profitable is bringing the giant oil and mining companies into the business.

Two examples of uranium profits cited: AT&SF Railway reports its Haystack uranium mine near Grants, New Mexico, earned \$554,000 after taxes in 1955; Anaconda Co. this year will earn between \$1.50 and \$2 a share on its uranium mine-mill operation.

As a matter of course, many oil companies have checked their own extensive land holdings for evidence of uranium deposits. Phillips, Shell, Tidewater and Superior Oil are pressing exploration programs.—*Grants Beacon*

New mineral belts in the Mojave Desert which may yield much vital minerals such as borax and lithium are being mapped by the U. S. Geological Survey. The U.S.G.S. also hopes to find new uses for the rare earth deposits near Mountain Pass. Elements found there now are used as cigarette lighter flints.—*Nevada State Journal*

AEC Plans New Research Test Site in Southern Nevada

AEC engineers are studying a 12.2 by 39.6 mile strip of land adjoining the nuclear testing area in southern Nevada, as a site for research projects of the Los Alamos and University of California laboratories, it was reported.

The new area, until now a part of the U. S. Air Force bombing and gunnery range, will not be used for bomb detonations. Scheduled research activities will be subject to the usual operating and radiation control, but no public hazard is foreseen, the AEC said.

Plans call for development work in the area directly west of Yucca Basin, and separate technical facilities supported by a control center for the Los Angeles Scientific Laboratory (New Mexico), and the Livermore branch of the University of California Radiation Laboratory. Administration and living quarters will be at Camp Mercury, northwest of Las Vegas.

Senator Alan Bible of Nevada gave assurance to mining men in his state that the AEC will propose establishment of milling plants and ore purchase stations in

Nevada just as soon as exploration reveals sufficient ore reserves to justify the installations. A continuing supply of at least 50 to 100 tons of ore per day is necessary to warrant construction and operation of an ore buying station, Senator Bible said. — *Humboldt Star*

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New Mexico Nears Lead in Nation's Uranium Production

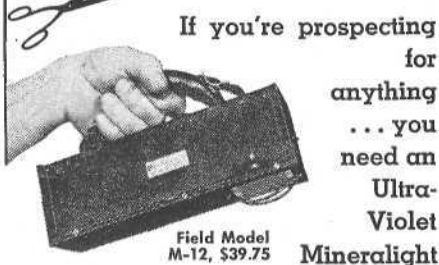
State Mine Inspector John Garcia reported that the mining industry in New Mexico,

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exclusive of oil and gas, broke all existing production records during the past year. The Ambrosia Lake uranium area north of Grants led the nation in production during the first half of 1956, he added. "New Mexico, in just three and a half years, has become the second largest producer of uranium in the nation. With the Jackpile Mine of Anaconda attaining full production after the latest AEC report was made, I'm positive that the state is now first in production of uranium," Garcia declared.

He estimated that the U-industry in the state has grown "from nothing in 1951 to a \$20,000,000 industry today." — *Grants Beacon*

Utah Construction Co. has exercised its option to acquire 60 percent control of Lucky Mac Uranium Corporation and thus set into motion a \$10,000,000 financing plan for a uranium mill in Gas Hills District of Fremont County, Wyoming. Under an original contract signed between Utah Construction and Lucky Mac, the construction firm agreed to establish ore reserves with the AEC; and finance and build the mill in exchange for 60 percent interest.—*Salt Lake Tribune*

Discovery of a new uranium ore body in the Green River Canyon southeast of Green River, Utah, was reported by a Seattle mining company. Columbia Uranium, Inc., said at least 10,000 tons of commercial ore has been blocked out by drilling. An incline shaft has been sunk to tap the ore body, and 50 tons of ore, encountered before the blocked-out deposit was reached, was shipped to the buying station at Thompson. Columbia Uranium made its first shipment less than 90 days after development work was started.—*Dove Creek Press*

New Prospecting Curbs Proposed for U.S. Lands

Uranium hunters are filing claims on so much land there is not much of it left, reported Representative William A. Dawson of Utah. The congress, he said, was devoting this session to public law problems and the possibility of recommending new laws to govern prospecting.

"The protection of the rights of prospectors is what we primarily are interested in," Dawson said. "Apparently the new crop of uranium prospectors do not have the code of ethics the old regular miners had about the tradition of respecting claims."

There are two proposals under current discussion to rectify this situation. One has to do with the possibility of issuing Federal permits, good for prospecting on Federal lands only and providing legitimate miners time to hold claims before they would make formal discovery notice.

The other would be a federal law to hold claims made by a miner for a reasonable period of time.—*Nevada State Journal*

Homestake Mining Co. announced it has entered into a limited partnership agreement under which it will undertake to complete negotiations with the Atomic Energy Commission for a uranium mill construction contract in western New Mexico. The plant, to be built in or near the Ambrosia Lake area, would be capable of handling 750 tons of ore a day. Ores for the mill would be contributed to the partnership by the United Western Minerals Co., J. H. Whitney and Co., White, Weld and Co., and other interests.—*Salt Lake Tribune*

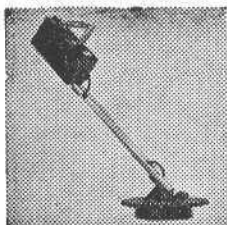
Vitro Corporation of America outlined a plan to build on a private enterprise basis a \$5,000,000 uranium refinery adjacent to its U-ore mill in southwest Salt Lake City. The plant, termed a "nuclear feed materials" facility, would be keyed into a pending additional \$1,200,000 expansion of the mill, according to the corporation's technical committee.—*Salt Lake Tribune*

A new strike of major proportions was announced in mid-October by Apex Minerals Corporation in its uranium operations near Austin, Nevada. The orebody of as yet undetermined size, was said to be the largest yet discovered on the Apex property, far exceeding both the Diamond and Rundberg orebodies. Ore being discovered in the depths of the tunnel is described as resembling a layer cake, with layers of pure autunite from six inches to two feet thick running through the face, interspersed with other layers of less valuable ore.—*Reese River Reveille*

Secretary of the Interior Fred A. Seaton warned the mining industry that high production is causing tremendous drain on natural resources and called for renewed efforts to discover new mineral deposits. "New deposits must be found and developed. We need more advanced techniques, better instruments and greater willingness to undertake financial risks in exploration," he said. For one reason or another, he added, the mining industry has depended too long upon ore discovered decades ago.—*Battle Mountain Scout*

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GEMS AND MINERALS

California Desert Gold Found in Varied Geologic Settings...

For many years the annual gold output of California was the highest of all mineral products of the state, but in 1907 it was surpassed in value by petroleum and more recently by several other mineral commodities. During the period 1848-1954, California mines yielded 103,000,000 fine ounces of gold valued at more than \$2,333,000,000.

Native gold is by far the most abundant of the gold minerals. In Nature it is commonly alloyed with silver, and the alloy is known as electrum if the silver content exceeds 20 percent.

The silver fraction in California gold averages about 12 percent; electrum is relatively rare in the state. The purity of gold is usually expressed in fineness with pure gold measuring 1000 fine. The gold mined in California ordinarily lies within the 700 to 900 fineness range.

Gold crystallizes in the isometric system, but ordinarily is massive or flaky. Although crystals are uncommon in most gold deposits, well-formed crystals are abundant at several lode mines in California. Such crystals generally are distorted into leaf-like aggregates.

East of the Sierra Nevada Mts. in the Basin-Range of Mono and Inyo Counties are a number of famous gold mining districts, including the camp of Bodie which produced \$30,000,000 in gold.

The Russ district in the Inyo Range northeast of Lone Pine produced from gold-bearing quartz veins in Paleozoic metamorphic rocks intruded by granite. East of Ballarat and on the west side of the Panamint Range gold-quartz veins are in schist.

Kern and San Bernardino Counties have most of the gold mines in Southern California. The Randsburg district contains gold and silver-gold mineralization in quartz veins and as impregnations and stock-works in quartz monzonite of Jurassic age and pre-Cambrian schist.

In the Mojave-Rosamond district gold-quartz veins occur in or near rhyolite plugs that are intrusive into quartz monzonite. In the Cove district, which lies in the part of the Sierra Nevada that extends into northeastern Kern County, gold-bearing quartz veins are associated with Paleozoic schists and Jurassic granitic rock.

Significant amounts of gold have been mined throughout San Bernardino County, but the principal source has been the Bagdad-Chase mine south of Ludlow, where gold and copper deposits are found along contacts between bodies of quartz monzonite and rhyolite. In the Dale district, gold-quartz veins occur in andesite porphyry. Gold also has been produced in the Whipple Mountains, the Ivanpah Range, the New York Mountains and the Old Woman Mountains.

Gold occurs in numerous areas in Riverside, Imperial and San Diego counties. Most of the gold mined in Riverside County has been obtained from the Pinacate district where there are gold-quartz veins in granodiorite.

Substantial quantities of gold have been produced from quartz veins in pre-Cambrian schist and gneiss in the Cargo Muchacho and Picacho Mountains of southeastern Imperial County. Substantial amounts of placer gold also were produced from the Picacho area as well as from the Potholes area near the Laguna Dam. Gold also has been produced from the Paymaster silver district in the Chocolate Mountains.

Gold has been mined in the Julian-Banner district of the Peninsular Ranges of San Diego County, where gold-bearing quartz veins occur in Triassic schist that has been intruded by granite and granodiorite.

The San Gabriel Mountains of Los Angeles County have produced several million dollars worth of gold, mostly from the

Governor mine near Acton, where gold-quartz veins cut quartz diorite. Placer gold has been obtained in the Saugus area and from the San Gabriel River channel. — California Division of Mines' Mineral Information Service

OUTDOOR MANNERS AS IMPORTANT AS INDOOR

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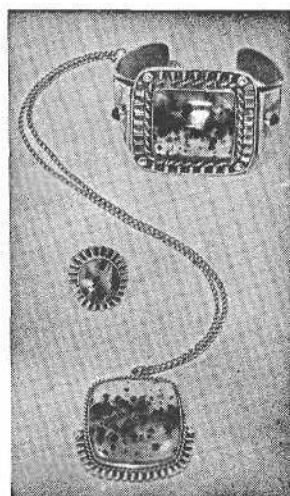
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FEDERATION FIELD TRIP STAFF APPOINTMENTS TOLD

Mary Frances Berkholz has been re-appointed Field Trip Chairman for the California Federation of Mineralogical Societies. Serving with her will be Willis Bell, assistant chairman; Anthony Berkholz, camp coordinator; Leland Hollingshead, northeast coordinator; Frank Nelson, northern coordinator; Harold Netzley, central coordinator; Bruno Benson, coastal coordinator; Clifton Carney, safetyman; Inez and Gaylon Robertson, chuckwagon; and Mary Scott, secretary.

In other Federation news, President Bill Stephenson appointed Miss Margaret Harris, 270 So. Lasky Drive, Beverly Hills, California, Show Date Coordinator. All clubs and societies in the federation were asked to clear tentative show dates through Miss Harris.—*Gems and Minerals*

The Orange Coast, California, Mineral and Lapidary Society elected Don Eggleston president for the coming year. Neil Royce was named vice president; Helen Brough, secretary; and Art Rasmussen, treasurer.—*Orange Gulch Gazette*

CLOSE THREE CALIFORNIA GEM COLLECTING FIELDS

The status of four California collecting areas have been clarified by the state Federation of Mineralogical Societies:

Willow Creek jade—due to the construction of a new bridge, this area is definitely closed to camping and collecting. It probably will be reopened late in 1957.

Pipes Canyon—a heavy thundershower has wiped out a section of the canyon road and at present it is impossible for stock cars to travel into the canyon. Check road conditions before planning a trip to Pipes Canyon.

Fiddletown rhodonite — being closed to collecting. Check with owners before planning a trip.

Castle Butte—this area still is open, contrary to rumors.—*Mother Lode Ghost Sheet*

FOUR KINDS OF SYNTHETIC GEMSTONES ON MARKET

There are three types of gemstones, natural, synthetic and simulated. The latter usually are made from glass while synthetic are cut from man-made material that is as near as possible to the same color and hardness of the natural stone.

Synthetic stones can be broken down into four distinct types, corundums (sapphires, rubies and star stones), spinels, rutile and emeralds. Except for the emerald, all the synthetic gems are produced by the same process.

Most inexpensive emerald-colored stones on the market today are called Spanish or Ferrer Emeralds. These are made from a substance known as leaded glass or hard-mass. The synthetic Chatham Emeralds are indistinguishable from a natural emerald (except under ultra-violet light) and sell for many times more than the Spanish or Ferrer-type emeralds. There is another green stone on the market, Bonded Emerald, so-called because it is made by fusing two pieces of white spinel together and using a green coloring agent at the point of union.

Rutile is made when titanium powder is dropped through an oxygen flame in about the same manner that corundums and spinels are made. The material then receives a heat-treatment which changes it from a black to a straw-colored transparent crystal. When cut, it has a sparkle superior to diamond, but is much softer, only having the hardness of quartz.

Assembled stones are also known as layer stones, doublets, triplets, etc. They are made when two or more layers of material are cemented together to create what appears to be one stone.—*Border Braggins*

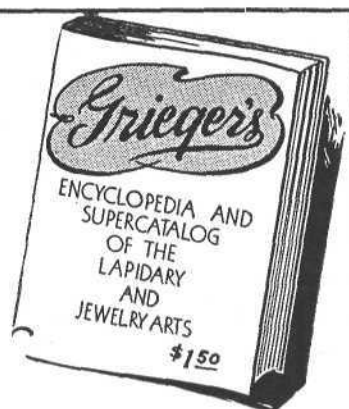
The Colorado Mineral Society will be host to the 1957 conventions of the Rocky Mountain Federation of Mineral Societies and the American Federation of Mineral Societies in Denver, June 13-16. Planned for the occasion is the 1957 National Gem and Mineral Show. Prospective displayers and member societies were asked to make show space reservations early by writing to Calvin B. Simmons, president, Colorado Mineral Society, 5541 West 10th Ave., Denver 14, Colorado.

Mohs scale indicates the rank of hardness—not the degree. The difference between a gem stone of nine and one of 10 is greater than the difference between nine and one on the Mohs' scale. Gem value is based on (1) beauty or splendor, transparency, brilliance and luster; (2) durability or hardness; (3) rarity and degree of perfection; (4) fashion.—*Border Braggins*

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BLACK FIRE OPAL MOST DESIRABLE OF ALL OPALS

The best known type of opal is the fire opal with its vivid flashes of color in white, gray, translucent and black backgrounds. Authorities cannot agree on the cause of the play of color in fire opal. Some believe myriads of fine cracks break up the light entering the stone and reflect it back in the flashes that make fire opal so desirable.

Black fire opals of Australia are the most valuable of all. Next are the jelly opals, also found in Australia. These stones show considerable fire, but because of their transparency it is often necessary to back them with a dark material such as obsidian to bring out their colors more vividly.

The most common and least desirable opals are the common or milk opals, white in color and showing little or no fire. Such opals often can be used advantageously for backing stones of better quality.

Prase opal, found in various parts of California in the Lake County and Clear Creek areas, are a common opal that has been stained green by its chrome content. These stones usually are collected as specimens and it is difficult to find any that will cut desirable cabochons.

The beautiful Virgin Valley opal of Nevada is usually kept in water as a display piece because of its unfortunate tendency to crack as it loses moisture on exposure. However, not all of these stones have this trait.

Mexican opal is in a class by itself. The vivid colors of the stone are outstanding. Many Mexican opals, because of fracture, are cut with the matrix as part of the cabochon. This reduces chances of breakage and tends to serve as a natural doublet that intensifies the color.

Honey and cherry opals, usually from Mexico, are yellow and orange-red in color and can be faceted or cabbed.

Besides the California and Nevada opal fields noted above, stones can be found in this country in the Hart Mountains of Oregon; near Moses Lake in Eastern Washington and Idaho.

The best known source of opals in Europe is the deposit near Kaschan, Czechoslovakia. These opals are noted for their delicate play of color and patches of color and for this reason are known as harlequin or oriental opals.—Gerald Hemrich in the Contra Costa, California, Mineral and Gem Society Bulletin.

TOURMALINES FOUND IN WIDE VARIETY OF COLORS

Originally, tourmaline came from Ceylon, its name derived from turamali, a native word for hyacinth (brown zircon). Tourmaline is found in this country wherever coarse granitic rocks and their related pegmatite dikes come to the surface. San Diego County in California is famous for its colored tourmalines.

Black tourmalines are found at the Beacon Mine near Ishpeming, Michigan, at most of the hardrock mica mines around Spruce Pine, North Carolina, and in many other states.

Brazil is the chief source of this gem material today. Many localities in Madagascar have yielded crystals of interesting color zoning. Southwest Africa produces fine green crystals. The island of Elba off the coast of Italy is famous for its pink crystals, often tipped with black, and the Urals have produced some deep reds. The West Paris, Maine, area also is noted for its fine gem stones.

Tourmaline has a hardness of 7.5 and specific gravity of 3.10. Six variety names and the corresponding names preferred by jewelers are: acroite—colorless tourmaline;

rubellite—red; indicolite—blue; siberite—purple; schorl—black; African tourmaline—fine green.—H. C. Thornton in the Chicago Rocks and Minerals Society's *Pick and Dop Stick*

Mercury was known to the ancient Chinese and Hindus and it has been found in Egyptian tombs dating back to 1500 B.C. The mercury mine at Indria, California, is the world's largest producer today. Two flasks of mercury, each weighing 76 pounds, were considered the maximum load for a burro in the early days.—*Arrowpoints*

Man has used copper since prehistoric times. It has been mined for more than 5000 years and except for iron, has been used more than any other metal. The symbol of the element, Cu, is derived from the Roman name for copper—cuprum.—*Arrowpoints*

Jade first was used by man in religious and medical activities, especially for the prevention of kidney ailments. Thus Nephrite, a type of jade with distinguishing interlocking fibers, is derived from the Greek word for kidney, *nephros*.—*Bell Notes*

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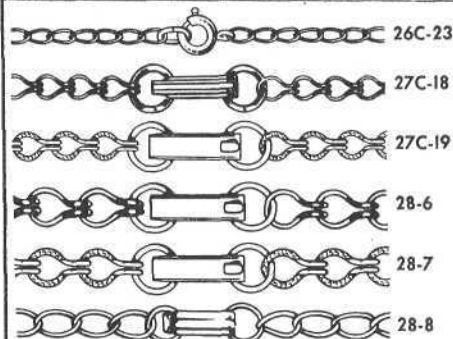
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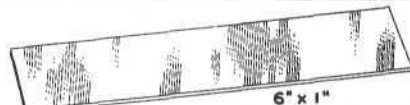


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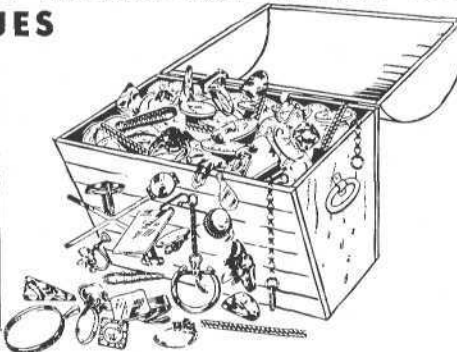
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New officers of the Northwest Federation of Mineralogical Societies are Mrs. Alice Allenbaugh of Boise, Idaho, president; Joe Harbaugh, Tacoma, Washington, vice president; Mrs. A. W. Hancock, Portland, Oregon, secretary; and Mrs. Nick Mueller, Washougal, Washington, treasurer.—*Puget Souder*

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AMATEUR GEM CUTTER

By DR. H. C. DAKE, Editor of The Mineralogist

Rubber bonded silicon carbide wheels will find wide utility in gem cutting, jewelry making and metal work. Below are a number of suggestions.

Rubber bonded wheels are operated dry and at approximately the same speed as the regular silicon carbide wheel. The 6 x 1 inch, 100 grit wheel is well suited for general lapidary purposes. With proper care a six-inch wheel will give very long service, since it is not used for heavy grinding and will not slough off rapidly.

Sanding wheel marks from cabochon cut sapphire is a slow operation when carried out on the regular sanding cloths. The 100 grit, rubber bonded silicon carbide wheel will "sand" star sapphire much faster than regular sanding cloth. The rubber bonded wheel is especially efficient for this purpose.

In cutting unusual shapes like crosses, hearts and crescents from hard gem material like agate, difficulty may be experienced in sanding the angles and corners prior to polishing. The rubber bonded wheel will be found ideal for this purpose. Marks left by the regular silicon carbide grinding wheels can be removed with ease and speed.

Cabochons cut from hard material can be readily sanded with the rubber bonded wheel. The rubber bonded wheel is not indicated for sanding soft gem materials. For the sanding of cabochons the rubber bonded wheel has the added advantage of not throwing dust or grit.

For finishing jewelry work after casting or soldering prior to polishing, rubber bonded wheels find wide utility. This type of wheel is especially efficient in metal work, quickly removing scratches and leaving a smooth surface ready for the final polish. They also are clean to operate and are available in a wide range of grits and sizes.

The side of the rubber bonded wheel also can be used for sanding flat surfaces, like the backs of cabochons. The most suitable rubber bonded silicon carbide wheels for use in the gem cutting industry are the 60 and 100 grits.

* * *

The lapidary can construct inexpensive felt polishing wheels by the following method.

Make a disk of wood with a hole in its center to fit the polishing head arbor. This disk can be made of a diameter and peripheral thickness to suit the need of the hobbyist. If desired the disk can be cut and made true by any woodworker at a small charge.

The circumference of the disk is then coated with *Duco* cement or waterproof glue and a strip of felt about 1/4 inch thick is cemented around the circumference. Stretch the felt fairly tight and use brads to hold until the cement dries, but remove them prior to using the wheel. The sides of the wooden disk also can be covered with felt, to permit the use of the large flat side surface.

When the cement has set, a chisel can be used to true up the surface of the felt, and the edges trimmed. Use a sharp chisel while the wheel is in motion, holding the tool on a rigid rest. Care should be used to place the lap joint in the proper direction, so when the wheel is in operation the union will not be torn.

Thus the gem cutter can have available numerous felt buffs for use with various polishing agents and yet not make a large investment. Naturally the life of a felt buff of this type is limited, but they are well suited for other than commercial shops. A proper type of fairly hard felt is available in sheets from supply houses, or the felt

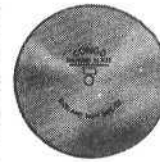
used in padding saddles can be used. Sheets of felt also can be used on the horizontal lap for the polishing of large flat surfaces. A proper size wooden disk is made to fit the master iron lap or placed directly on the end of the vertical shaft. The wooden or metal disk is then covered with a sheet of felt, using the same cement as indicated above. Large size, 15 to 20 inch polishing felts can be made in this manner, which will operate satisfactorily in polishing.

• • •

The Annual Gem and Mineral Show and Sale of the Cleveland, Ohio, Museum of Natural History is scheduled for December 7-9.

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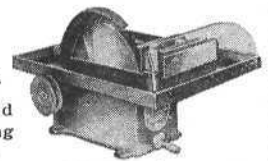


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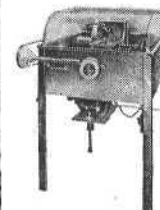
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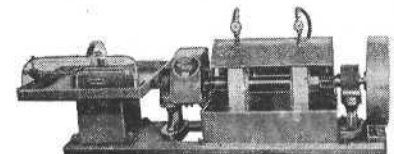
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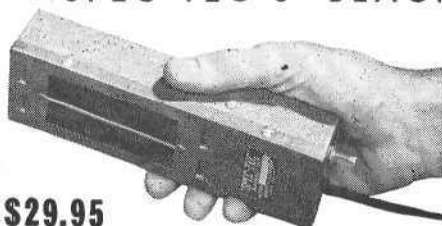
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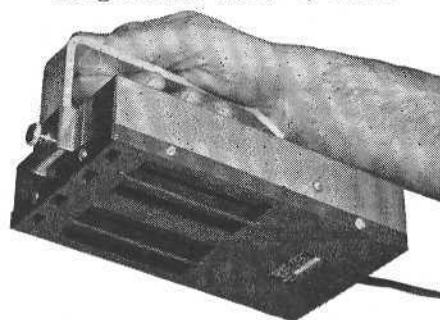
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'Tis not the weight of jewel or plate,
 Or the fondle of silk and fur;
 'Tis the spirit in which the gift is rich,
 As the gifts of the wise ones were;
 And we are not told whose gift was gold
 Or whose was the gift of myrrh.

—Edmund Vance Cooke

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DESERT PROTECTIVE COUNCIL ELECTS BOARD MEMBERS

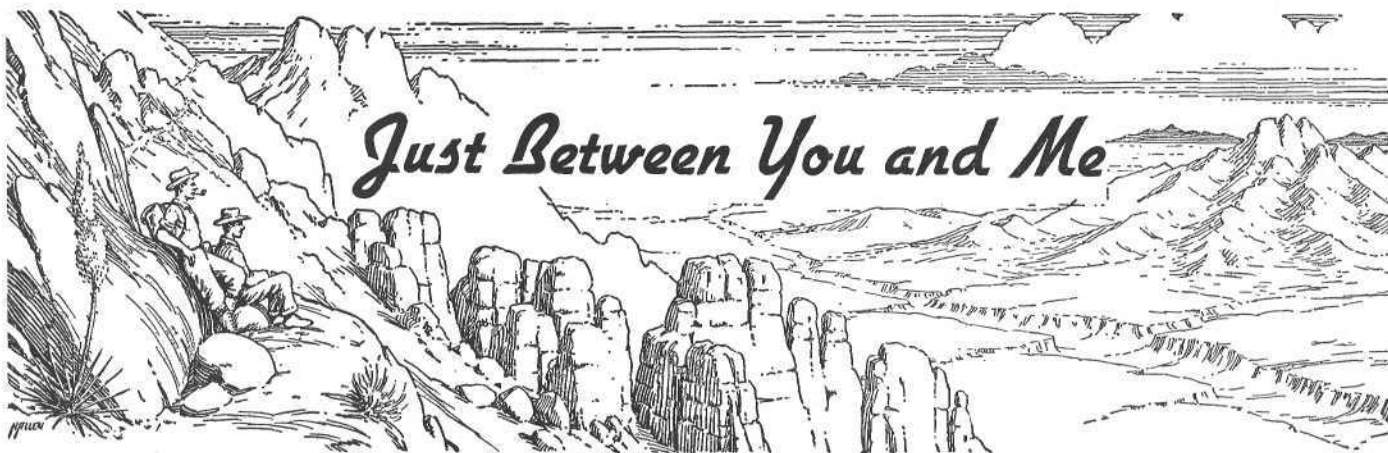
For the purpose of extending its activities over the entire Southwest, the Desert Protective Council at its annual meeting in Joshua Tree National Monument late in October voted to increase its board of directors to 15 members and include representatives from Arizona, Nevada and Utah.

New directors elected were Weldon Heald, writer of Tucson; Thomas W. Miller, chairman of the Nevada State Park Commission; Elizabeth Lewis of Fruita, Utah; Dr. Edmund C. Jaeger, naturalist of Riverside, California; Homer Rush of Los Angeles, president of the Cactus and Succulent Society; Parker Severson of the Sierra Club; and Mrs. Josephine Miller of San Clemente, California.

Remaining members of the board are Harry C. James, Lolomi Lodge, San Jacinto mountains; Mrs. Ralph Lutz, Twentynine Palms; Ronald Johnson, Richard Keller and Roderick Leap, Thermal, California; Dr. Henry Weber and Dr. Ernest Tinkham, Indio; and Randall Henderson of Palm Desert.

The Council also changed its by-laws to provide for an executive committee and an executive secretary within the board of directors. Personnel of the new committee will be selected at the first meeting of the board.

The Council reaffirmed its position in opposition to the opening of Joshua Tree monument to mining and commercial roads, and voted to make an award of merit to the individual selected each year for outstanding work on behalf of the conservation and preservation of the desert's natural resources.



By RANDALL HENDERSON

RECENTLY it was my privilege to spend a weekend camping with Dr. Edmund C. Jaeger, the Naturalist, at what he calls the "Jelly-Roll Rocks" on the Mojave desert overlooking Lucerne Valley.

For many years Dr. Jaeger taught natural science courses in the Riverside, California, Junior College, and on his weekend field trips into the desert he always invited some of the boys in his classes to accompany him. Today many of those boys have become successful business and professional men, and in order to keep in touch with them he holds an annual reunion—the Jaeger Palaver—always a camping trip on the desert.

At the evening campfire the talks revealed the deep respect these men hold for their former teacher, and their appreciation for the acquaintance he had given them with the great world of Nature.

Dr. Jaeger was our guide and teacher on a hike over and around the Jelly-Roll rocks—a name given by him because of the unusual stratification of the huge granitic boulders in this place. And what a treat it is to tramp the desert with a scientist who knows the name and story of every plant and bird and insect. He told us about those brawny little workers, the harvester ants, and pointed out the matchweed which has so much resin in its stems it can be used to start a campfire even when green. When we came to a narrow vertical crevice in the granite he called attention to the carpet of small pebbles just outside the opening—evidence that somewhere back in the depths was a rock wren's nest. Every stone and shrub had a story—and even the holes in the ground have significance to one who knows the answers. Dr. Jaeger promised to write a story about those holes for a future issue of *Desert Magazine*.

One cannot live close to the world of Nature without a deep reverence for the Creator of it all. The miracles of creation did not all take place 2000 years or more ago. They are going on constantly all about us. I wish the clergy could understand this. The schools of theology then would divide their time between the class-room study of Divine word—and field study of Divine works. And how the young people would love that kind of religion.

* * *

Among millions of tenderfoot Americans the old superstition persists — that the desert is teeming with stinging insects, biting rodents and venomous reptiles. A letter came this week from a family which had gone to great effort and some expense to build a sleeping compartment on a jeep—because they were afraid of the tarantulas on the ground. Actually, a tarantula—the kind

we have in United States—is about the most harmless creature on earth.

During the first 300 days this year nearly 900 people were killed by motorcar accidents in the City of Los Angeles—an average of three a day. In the entire Southwest I doubt if three people have died from rattlesnake poison during the last 365 days.

The lesson for you and me is obvious. The most serious hazards to life and health are not out in the natural environment of God's creation, but in the mechanical world which has been devised by man.

* * *

Writing on "The Annihilation of Privacy" in *The Saturday Review*, Ashley Montagu of the department of anthropology at Rutgers, suggests that civilized man has become so involved in social obligations he is in danger of losing his identity as an individual. His eternal quest for a higher standard of living has been quite successful, but at great cost in ulcers, mental breakdowns, homicide, violent crime, juvenile delinquency, alcoholic and drug addiction. He needs sometimes to go off by himself, something he rarely can do.

"Every human being," he says, "wants and needs to replenish his resources for being social by having a room of his own, as it were, a sanctuary to which he can retire and be alone with himself, undisturbed by the rumors and alarms of the outside world."

He lives too much in a babble of voices, of the squawking radio and teevie, the honking horns and shifting gears on the street. In a lifetime of living with noise and interruption, man becomes dependent, too dependent, on other men. He grows fearful of being alone. Then he is ready for any kind of subsidy which will restore his feeling of security. He is softened up for more invasions of his privacy—and less of personal independence.

People who are aware of this need for a "room of their own" are coming more and more to the desert. For much of this arid land is still an untamed wilderness, a friendly wilderness for those who are at peace with themselves, a revitalizing wilderness for those who would recapture peace for themselves.

* * *

From my scrapbook:

What profit the whirr of Wheel,
The roar of Wings, the clang of Steel—
If from a world in these arrayed,
The builders turn away, dismayed,
Weary, and sick of mind?

—MARSHAL SOUTH

BOOKS of the SOUTHWEST

FIELD GUIDE TO BEST GEM FIELDS IN ARIZONA

Alton Duke of Yuma, Arizona, has written a field guide to nearly 50 of his state's best jasper-agate gem collecting fields which he hopes will help compensate for what he considers a preponderance of technical books on mineral identification and lapidary techniques over books dealing with the field trip phase of the hobby.

Arizona Gem Fields tells all about the state's top collecting places — where they are located, how they can be reached, what the visitor should bring in the way of supplies and equipment, what he can expect to find, etc. The author includes chapters on desert driving and field trip preparation and the book contains 16 maps and several photographs.

Duke does not attempt to analyze the chemical composition of the gem materials he leads you to, and every trip described can be made by automobile.

Published by Southwest Printers, Yuma, Arizona; maps and illustrations; 112 pages; paperback cover; \$2.00.

NEW BRIGHAM YOUNG BIOGRAPHY PUBLISHED

Brigham Young, the greatest colonizer of his day, the "Mormon Moses" who led his persecuted brethren across the continent to the valley of the Great Salt Lake and then showed them how to take root, spread and grow invincible, is the central character of a new biography by Olive Burt, written especially for young readers. The author is former children's feature editor of the *Salt Lake Tribune* and following that, magazine editor of *The Deseret News*.

Young's devoted consecration to his creed combined with a remarkable ability to know and understand the ways of men—to lead them in an hour when guidance was so desperately needed, should make this story as exciting and inspiring to young readers as the reading about characters of a more modern and fictitious leaning.

Brigham Young; published by Julian Messner, Inc., New York; index; 192 pages; \$2.95.

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BIRD ECOLOGY SIMPLIFIED IN BLACKFORD BOOK

John L. Blackford, familiar to *Desert Magazine* readers for his nature and wildlife photographs and stories as well as the current Pueblo Pano-ramas series, has written a new guide to birds and bird habitats of the Western United States.

Western Wonderlands is designed to give the layman a simple interpretation of bird ecology and a useful guide for field enjoyment and study. This is a pioneer work which should prove a time-saver to the non-scientist who is not completely familiar with the various bird habitats in the West. It is designed to supplement a manual on field identification of birds.

The 18 habitats included in this book are broken down by landscape aspects; life zone; dominant trees, shrubs and plants; associated floral growth; distinctive parasites such as mistletoe; etc. Then for each of these distinct habitats are listed those birds which characteristically breed there; those which commonly breed there; those which occasionally breed there; occasional visitors; etc.

Highlight of the book is a 96-page section devoted entirely to outstanding photographs of birds and their habitats.

Published by Vantage Press, New York City; with glossary, reference list and index; illustrated; 216 pages; \$5.00.

BERRY FARMER KNOTT'S BIOGRAPHY PUBLISHED

Hard work, a loyal family and the bountiful land — mix them together, add imagination and daring and you have the fabulous story of Walter Knott and his Berry Farm in Buena Park, California.

Roger Holmes, an Orange County journalist, and Paul Bailey, author of several Desert Southwest books including *Jacob Hamblin*, *Buckskin Aposile* (*Desert*, April '48, p 47) and *Walkara, Hawk of the Mountains* (March '55 p43) have collaborated

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to write Knott's biography which they call *Fabulous Farmer*.

But, this isn't the story of a farmer who grows a few berries, builds a restaurant and miraculously becomes rich and famous. Rather it is the story of a hard working farmer who starts as a boy to raise truck crops on Pomona's vacant lots; who finds bitter disillusionment on his Mojave Desert homestead; struggles along on a leased 10 acres watching his kids miss out on the fun at school because they have to crawl up and down the planted rows, pulling weeds or picking fruit and then scrambling out to the highway to hawk it to passing cars.

The Knott family's reward is a world-famous enterprise with an annual payroll reaching into the millions of dollars. They serve a million and a half chicken and steak dinners every year — on Mother's Day alone they average 14,000! Today they have 50 acres exclusively for free parking — five times the size of their original farm, and their narrow-gauge one-mile railway is actually among the national leaders in point of number of passengers carried. The last chapter in the book tells about the Knotts' Calico Ghost Town, their latest venture.

Published by Westernlore Publishers, Los Angeles; Illustrated from the sketches of Paul von Klieben and Clarence Ellsworth; \$3.00.

Again available is the popular *Scenic Guide to California* by Weldon F. Heald. 112 pages; maps; descriptions; illustrations; \$1.50.

Books reviewed on this page are available at Desert Crafts Shop
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DESERT BOOKS FOR CHRISTMAS

Here are a few selected titles especially appropriate for Christmas giving—books your friends will want to read and then keep for permanent reference. We offer these suggestions:

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 G2 CALIFORNIA, 713 pp.\$6.00
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